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BRAITHWAITE'S RETROSPECT.

VOL. XIX. JANUARY—JUNE. 1849.

THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

W. BRAITHWAITE,

LECTURER ON OBSTETRIC MEDICINE AT THE LEEDS SCHOOL OF MEDICINE, ETC.

VOL. XIX. JANUARY—JUNE.

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ERRATUM IN LAST VOLUME.

At page 459 of Vol. XVIII., line 15 from the bottom, for "*iodide of mercury*," read "*iodide of potassium*."

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PRACTICAL MEDICINE,

&c., &c.

DISEASES AFFECTING THE SYSTEM GENERALLY.

Art. 1.—ON THE NON-IDENTITY OF TYPHOID AND TYPHUS FEVERS.

By Dr. W. Jenner.

[It has been generally held by British physicians, that the *typhus* and *typhoid* fevers are essentially the same disease. Dr. Jenner, however, has come to conclusions precisely the reverse of this, from a careful investigation of a large number of cases which have occurred at the London Fever Hospital. He asserts the diseases to be essentially distinct; and the evidence which he adduces in support of this assertion is derived from the post-mortem examination of sixty-six fatal cases, the symptoms of which he had noted during life. One of the most important points of difference in the symptoms of typhus and typhoid fever seems to be the eruption, by the appearance of which, Dr. Jenner states, he is able positively to declare the nature of the disease. Dr. J. gives the following]

Description of the Rose Spots peculiar to Typhoid Fever—The eruption in the cases of typhoid fever here analysed, was papular. The papulæ, called by Louis *taches roses lenticulaires*, possessed the following characters:—

They were slightly elevated. To detect the elevation the finger had to be passed very delicately over the surface, as they had none of the hardness of the papulæ of lichen, or of the first day's eruption of smallpox. Their apices were never acuminated, never flat, but invariably rounded—their bases gradually passed into the level of the surrounding cuticle. No trace of a vesicle or white spot of any kind was ever detected on them. They were circular and of a bright rose colour, the latter fading insensibly into the natural hue of the skin around. They never possessed a well-defined margin.

They disappeared completely on pressure, resuming their characteristic appearances as soon as the pressure was removed, and this was true from first to last, from their first eruption to their last trace. They left no stain of the cuticle behind; they never passed into any thing resembling petechiæ—the characters they presented on their first appearance continued till they vanished. Their ordi-

nary size was about a line in diameter, but occasionally they were not more than half a line, and sometimes a line and a half in diameter.

The duration of each papula was three or four days; fresh papulæ made their appearance every day or two. Sometimes only one or two were present at first, ran the course above described, and then one or more fresh ones made their appearance, vanished in three or four days, and were followed by others to last as long.

The number of papulæ seen at one time on the surface was ordinarily from six to twenty—though occasionally there was only one, and sometimes more than one hundred.

They usually occupied the abdomen, thorax, and back, but were occasionally present on the extremities. One was frequently noticed on the thorax, over the cellular interval at the upper border of the pectoralis major on either side.

A *very pale and delicate* scarlet tint of the skin sometimes preceded the eruption of the papulæ, but never lasted more than a day or two. The skin resembling in tint that of a person shortly after leaving a hot bath.

Rose spots were present in nineteen of the twenty-three fatal cases here analysed.

There was no eruption detected in four cases.

The date of the first appearance of the papulæ was ascertained in three cases, which commenced suddenly, and was the 8th, 12th, and 20th days; the patients being admitted respectively on the 4th, 5th, and 10th days of the disease.

In a fourth case, in which the papulæ first appeared on the nineteenth day, the patient, a strong made butcher's man, left his work only eight days before the eruption appeared, but had been ailing for ten days before he left his work.

The papulæ were present in thirteen cases when the patients first came under observation—three of these cases being seen for the first time on the 9th, 13th, and 18th day of the disease; five on about the 8th, 10th, 12th, 16th, and 22d day; and two on about the 15th, and two on the 28th day. In one case no clue to the duration of the disease before the patient's admission could be obtained.

In two cases the date of the first appearance of the spots was not noted.

Of the four cases in which no spots were detected, three had been ill before they entered the hospital more than fourteen days, and one probably more than three weeks.

The longest time any given papula remained visible was six days, the shortest time one day. The average duration of each spot, calculated from repeated observations on nine of the cases here analysed, each observation including several spots, was 3·14 days.

In three cases which proved fatal on the 32d, 34th, and 86th days, fresh spots made their appearance as late as the 29th, 21st, and 24th days. The first of these cases proved fatal from peritonitis, the other two died of erysipelas.

In seven cases which proved fatal on about the 23d, 25th, 28th, 30th, 44th, 46th and 71st days, fresh spots were observed to appear respectively, as late as about the 19th, 15th, 24th, 24th, 23d, 24th, and 30th days of the disease. Of these patients, the first three, or those who expired as nearly as could be ascertained before the 30th day, died chiefly from the abdominal lesion.

The last four died respectively of pneumonia, sloughing, erysipelas, and pleuro-pneumonia and sloughing.

No second crop of papulæ was observed in seven cases, the patients dying on the 2d, 3d, 3d, 5th, 6th, 7th, and 15th days, after they came under observation.

In the two cases in which the date of the first appearance of the spots was not noted, the presence or absence of more than one crop of papulæ was not recorded.

To sum up—

1. Rose spots were detected during the progress of all the cases admitted before the fourteenth day of the disease.

2. The spots usually appeared between the seventh and fourteenth days after the first symptoms of the disease showed themselves.

3. The ordinary duration of each spot was three days.

4. Fresh spots generally appeared every day or two after their first eruption, till from the twenty-first to the thirtieth day.

5. One case relapsed, and in that fresh papulæ appeared every day or two till the twenty-fourth day, then no more were seen till the thirty-seventh day, after which fresh spots were again noted daily till the forty-ninth day, reckoning from the first outset of the disease.

6. The fever terminated by the thirtieth day, as proved by no fresh spots appearing after that day, unless in the case of a relapse, and by the presence of local complications sufficient to account for death in all cases that proved fatal after that date.

Description of the Mulberry Rash peculiar to Typhus Fever.*-In the cases of typhus fever, the eruption was never papular. Its characters varied with its duration. On the first appearance of the rash, it consisted of very slightly elevated spots of a dusky pink colour. Each spot was flattened on the surface, irregular in outline, had no well-defined margin, but faded insensibly into the hue of the surrounding skin, disappeared completely on pressure, and varied in size from a point to three or four lines in diameter. The largest spots appeared to be formed by the coalescence of two or more smaller, and the shape of the former accordingly was more irregular than that of the latter.

Second Stage.—In one, two, or three days, these spots underwent a marked change; they were no longer elevated above the surrounding cuticle, their hue was darker and more dingy than on their first

* I have ventured to use a new term for designating the rash peculiar to typhus, because I consider it unadvisable to retain any of the names now in use, limited as each of those names is to a peculiar modification of the one rash here described. In consequence of the eruptions in scarlet and typhoid fevers having received names from their colour, and the rash of typhus fever often resembling in hue the stain of the mulberry, I have been led to adopt the above term.

appearance, their margins rather more, but still imperfectly defined, and now they only faded on pressure.

In this stage they were usually darker, less affected by pressure, and their margins more defined on the posterior than on the anterior surface of the body. In some cases the spots after this grew paler, passed into faintly marked reddish-brown stains, and then disappeared.

Third Stage.—In others a third stage was reached, the centres of the spots became dark purple, and remained unaltered by pressure, although their circumferences still faded; or the entire spots, the circumferences as well as the centres, changed into true petechiæ, *i. e.* spots presenting the following characters,—a dusky crimson or purple colour, quite unaffected by pressure, a well-defined margin, and total want of elevation above the level of the cuticle. This alteration was most frequently observed to take place on the back, at the bend of the elbow, and in the groin. At the bend of the elbow they were generally oval, their long axis lying in the direction of the long axis of the arm.

In a large majority of the cases, the spots were very numerous, close together, sometimes almost covering the skin. In a few instances, however, they were comparatively few in number, very pale, and situated at some distance from each other.

The usual situation of the spots was the trunk and extremities, but occasionally they were limited to the trunk, and now and then were observed on the face.

Their number reached its maximum on the first, second, or third day, no fresh spots appearing after the latter date, and each spot remained visible from its first eruption till the whole rash vanished.

When very numerous, the whole of the spots seen together on the surface had not an equal depth of colour, many were much paler than the others, and had a dull appearance as if seen through the cuticle. In my notes I have been in the habit of distinguishing these collectively as the subcuticular rash. *It often, by its abundance, gave a mottled aspect to the skin, on which ground the darker spots were seated.*

Variations in the absolute or relative amount of the subcuticular rash, and of the spots, as well as in the depth of their respective colours, cause much difference in the general appearance of the rash. Sometimes it resembles measles so closely as to be distinguished from it with difficulty; at others, it presents that appearance, which has been called the spotted rash; and again, it is sometimes so pale, that unless carefully looked for it might be passed over altogether. When the spots on the back were of a much deeper hue than those on the anterior surface of the trunk, the skin covering the posterior surface was generally considerably congested. Slight pressure of the finger leaving a white mark, which slowly returned to its previous dusky red colour.

The eruption mulberry rash, characteristic of typhus fever, was observed in all of the forty-three cases of that disease here analysed.

The rash appeared in two cases after the patient's admission into

the hospital; the date of its first eruption in these two cases was the seventh and ninth days. In the remaining forty-one cases, the rash was developed before the patients came under observation.

To sum up,—

1. The mulberry rash was present in all the cases.

2. The rash usually appeared from the 5th to the 8th day of the disease.

3. Fresh spots never appeared after the 2nd or 3rd days of the eruption.

4. The duration of each spot was from its first appearance till the death or recovery of the patient from the attack of typhus.

5. The rash disappeared between the the 14th and 21st days of the disease; when death ensued after the latter date, it was the result of local disease, which either complicated the progress of the fever, and continued after that had run its course, or sprung up anew, connected or not with the enfeebled state of constitution, the consequence of the fever.

6. In no case was there any return of the eruption, and therefore *no true relapse.*

Monthly Journal, April, 1849, *p.* 663.

2.—ON DROPSY.

By Dr. R. B. Todd, F.R.S., Physician to King's College Hospital.

[In an admirable clinical lecture on this subject, Dr. Todd observes that dropsy is nothing more than a symptom of a disturbed state of the circulation, and that the simplest form of dropsy is that which accompanies local derangements of the circulation. One example of this is the anasarca which takes place in the legs of women of weak constitution, after much standing or walking: as a second example, Dr. Todd gives the following:—]

In phlegmonous and erysipelatous inflammations of the skin and subjacent tissue we find a state of œdema affecting the inflamed tissue, and also extending a greater or less distance around it. This is a state of dropsy, for it is caused by an effusion of serum or of liquor sanguinis into the areolar tissue, and this fluid can find its way thither in no other way than by filtration through the parietes of the blood-vessels. Examine carefully a patient labouring under erysipelas of the face, and you will find that the swelling is due entirely to the state of the subcutaneous tissue; and, in those parts in which the erysipelatous redness has not yet fully developed itself, that there is, nevertheless, swelling, and that the skin on pressure gives a doughy feel, and pits: the redness depends on the inflammation affecting the true skin, the swelling on the dropsy of the areolar tissue caused by the large attraction of blood to the cutaneous surface.

In like manner, when blood is determined in an unusual degree to certain membranous surfaces, dropsical effusions are apt to take

place into the sacs which these membranes enclose. Hence the accumulations of serum or of liquor sanguinis which so often occur in the sacs of serous membranes after pleurisy, or pericarditis, or peritonitis; and it forms an interesting topic of inquiry and discussion, why these effusions should take place after some pleurisies, &c., and not after others—why some pleurisies will afford no other effusion but that of a small quantity of liquor sanguinis, yielding more or less of plastic lymph, and others will pour out a sufficient quantity of fluid to fill the chest and compress the lung. I dare not digress into this interesting and important field of inquiry, but must content myself with stating my belief that the proneness to liquid effusion in the one case, and the absence of it in the other, is due to a difference in the physical constitution of the blood, which in the former instance is more liquid, and contains a larger amount of water, and less fibrin, albumen, and red corpuscles, than natural; while in the latter case the blood is either normal in its constitution, or contains an excess of fibrine. And I would add further my opinion, that the mode of treatment used in these serous inflammations exercises a very decided influence upon the occurrence or non-occurrence of such effusions, and that the practice of bleeding—especially of venesection—contributes much to the production of them. I can certainly state that, in cases of pleurisy, thoracic effusions have been of rare occurrence of late years in my own practice; and I explain it by the fact, that I have, to a great extent, abandoned the mode of treating these inflammations by large sanguineous depletions, and content myself with adopting other means of an antiphlogistic nature, which although less showy and less bold, are safer, and not so trying to the patient, and ultimately more satisfactory both to him and his physician. It is to large venesection that I have a particular objection; and, indeed, my experience enables me to express the opinion that general bloodletting is unnecessary, and, therefore, superfluous in most cases of pleurisy. If blood is to be taken away at all, let it be locally, by the application of leeches, or, what is still better, by cupping.

You observe I make use of the expression "blood determined to a part." This is a phrase much used by medical men, and one which I think we may continue to use without disadvantage. It implies that the blood-vessels of a part obtain more than their usual share of blood, but expresses nothing as to the cause or the mechanism of the determination. Undoubtedly local determinations may arise from very different causes, and by very different kinds of mechanism. The problem, "Why a particle of dust adhering to the conjunctiva makes and keeps the conjunctiva as red as velvet," has not yet received a clear and definite solution. My own belief upon the point is, that local determination such as this—due clearly to the presence of some irritating agent, whether in the blood-vessels, or external to them—cannot be satisfactorily explained without assuming the existence of a force which operates directly upon the blood in the capillaries,—a *vis a fronte*, which, by its attractive power, assists and regulates, by distributing in due proportion the

vis a tergo of the heart. An enfeebled condition of this force, and an augmented power of it, may equally tend to the production of very similar phenomena, often readily distinguishable by a practised eye, but which sometimes cannot be distinguished except by experiment. Under both conditions you may have determination of blood, congestion, or hyperæmia: in the one case it will be a passive, in the other an active congestion; in both cases you will have dropsy, i. e., effusion of serum through the walls of the over-charged blood-vessels, and this dropsy will be in one case active, in the other passive, but in both cases the proneness to dropsy will be favoured by the fluidity of the blood, its aqueous character, the diminished amount of its red particles.

[Dr. Todd then proceeds to speak]

Of Dropsy after Scarlet Fever.—There is a remarkable form of dropsy, of which, I think, no adequate explanation has as yet been offered. This is a *general dropsy*, affecting not only the whole of the subcutaneous areolar tissue, but very frequently the serous sacs, the pericardium, the peritoneum, and the pleura, often the ventricles of the brain, and even in some instances the areolar tissue of the lungs. The dropsy to which I refer is that which follows scarlet fever.

The *conditions* of this dropsy are—1st, a particular state of the *skin;* 2nd, a particular state of the *kidney;* and 3rd, I would add, a particular state of the *blood;* and I think you do not get the dropsy fully developed without the concurrence of all three conditions; if any one of them is absent you may have a threatening of the dropsy, but the result does not follow. Thus you may have the peculiar state of the blood, and the peculiar state of the kidney; but if the state of the skin be normal, the dropsy will be slight, or *nil.* Just so, when the peculiar conditions of the blood and of the skin are present, but the kidneys are healthy; and even if the particular state of the kidney and skin both existed, (and under such circumstances, you could scarcely have a healthy state of blood) yet, if the state of that fluid did not correspond with that which is favourable to dropsy, you would have other symptoms,—head affections, for instance,—but there would be no dropsy.

You will find a good illustration of the ordinary clinical history of this dropsy, in the case of a little boy in Sutherland ward: Thomas Dunn, æt. 5. He seems to have had mild scarlatina, and swelling appears to have come on shortly after the commencement of the desquamative stage. When he came into the hospital he was suffering from universal dropsy, affecting even his peritoneum. His skin was puffed out every where, especially over the penis, scrotum, extremities, and face, and it had that peculiar white, semi-transparent, waxy appearance, which is so characteristic of these cases. I think it very probable, too, that there was either an excess of sub-arachnoid fluid, or what is more likely, slight effusion into the ventricles of the brain; for during the first two or three days after he came in he was very drowsy and lethargic; and no

doubt the impure state of his blood contributed much to the lethargic condition. His urine was deficient in quantity, smoky in colour, and it shewed a great abundance of albumen on the application of the appropriate tests.

Now let us see in what way this case presented those three conditions, the concurrence of which I have just now stated to be necessary to the production of dropsy.

1. The *skin* was dry, rough, and harsh, and there would seem to be an irritated state of it; but this irritation was not extreme; and I think it would have been better if it had been made more so, as it would have enabled the patient to have thrown off more completely by cutaneous elimination the poison of the malady; for it is a known fact that the dropsy occurs in the mildest forms of scarlet fever, in which there had been little or no eruption: but in those cases in which eruption had come out well, and that desquamation is consequently excessive, no trace of it is to be found.

2. The *kidney* was in a very analogous condition to that of the skin; as there has been a desquamative state of the one, so there has been of the other. When we examine the kidney in these cases, (and now, thanks to recent researches, of which those of our friend Dr. Geo. Johnson are among the first both in time and importance, we have a very exact knowledge of its precise anatomical condition in this form of disease) we find it filled with epithelium, and the whole organ enlarged, and in a state of hyperæmia, as far as this great filling of the uriniferous tubes will permit it to be so. There is not only a large quantity of blood in the organ, from the undue attraction of blood to it by reason of its irritated state, but the blood is irregularly distributed in it. The principal anatomical change in the kidney results from the development of an undue quantity of epithelium in the uriniferous tubes.

The accumulation of epithelium creates an unnatural distension of the tubes, and the small vessels which ramify upon their walls (forming the portal vessels of the kidney) become compressed. Thus the blood is thrown back on the Malpighian bodies, so that the vascular system becomes irregularly supplied, the Malpighian bodies being very full of blood, but the portal system almost empty. Hence but a small portion of urine is secreted, and that containing serum or blood in large quantity; and this imperfect elimination of water is negatively a further cause for the accumulation of epithelia in the uriniferous tubes, as there is less fluid to wash them out.

The diagrams are intended to represent how the irregular congestion of the kidney in this disease takes place. One of them shows the arrangement of the vascular system with reference to the tubes in a healthy state; the other shows the tube enlarged, in consequence of the accumulation of epithelium in it; the afferent vessels being dilated because of the increased flow of blood to the kidney, and the efferent Malpighian vein being much enlarged from the obstacle to the free transmission of the blood through the portal plexus, which is represented as containing but little blood. The Malpighian tuft placed between the afferent artery and efferent

vein of the Malpighian body is greatly enlarged, and two or three of the small vessels composing it are represented to be ruptured, and giving exit to the blood into the uriniferous tube.

The congestion of the Malpighian bodies, when it exists to a certain amount, produces effusion of liquor sanguinis into the tubes; but when it exists to a still greater degree, it leads to rupture of the Malpighian vessels, and the escape of *all* the constituents of the blood: in the former case, the urine is merely albuminous; in the latter, in addition to the albumen, we find in it an abundance of blood-corpuscles, and fibrinous casts of the tubes, from the fibrine having moulded itself to their walls in the process of coagulation. This is the state of the kidney, and accompanying it is always that peculiar smoky condition of the urine, very characteristic, into a particular description of which it is unnecessary for me at present to enter.

3. The *blood*. What is the condition of the blood? Whoever looks at our patient, and, indeed, at all patients labouring under this form of dropsy, will see at once that there is every indication of a great want of red particles, and a too watery condition of the blood. I know of no good analysis of the blood in the scarlet fever dropsy, but I would venture to say that there must be a deficiency of albumen, and that the specific gravity of the serum must be below the natural standard: sometimes considerably so. I have not ascertained it in the present instance, from my unwillingness to impoverish my patient's blood, already too poor; but I feel assured that any future case that might admit of the examination would confirm my supposition, and that the blood would be found deficient in its solid elements generally. Now this is a state that must be highly favourable to the filtration of the liquor sanguinis through the walls of the capillaries, under particular circumstances.

These facts, I think, will lead us to form something like a theory of the foundation of this dropsy. What we have got to explain is this, that to-day a child may be going on very well, and to all appearance in a favourable convalescence, and in a few days afterwards may rapidly become universally œdematous, with effusions to a greater or less extent in the various serous cavities, accompanied by scanty urine, smoky in colour, and albuminous; in fact, exhibiting all the appearances I have already described. I think, if you look to the three conditions which I just now mentioned, you will get it satisfactorily explained.

First.—From some cause not easy of detection, but in some instances undoubtedly from exposure to cold, there is an arrest to the proper elimination of the scarlet fever poison through the skin, its usual emunctory, and the ordinary excretion of water through that organ is checked; not obtaining complete egress there, the poison finds for itself another channel, and is thrown on the kidneys. Its passage through those organs produces great irritation in them, the effect of which is, that water is imperfectly eliminated, and thus the escape of water from the blood is prevented through its two ordinary channels—namely, the skin,

which is *an* emunctory of it, and the kidney, which is *the* emunctory of it *par excellence*.

Secondly.—As a direct consequence of this obstruction to the escape of water through its two principal channels, a watery condition of the blood is induced. It is calculated that we get rid of three pints of water in a day, by the secretion of the kidneys, and by cutaneous perspiration, and certainly this is not too high an estimate. Now this water must be got rid of in some way or other, and when its usual channel of escape is cut off, it is very apt to permeate the parietes of the bloodvessels. But why do we find it particularly in the areolar tissue, and why in that of the skin more than any other part? It finds its way into the areolar tissue of the skin, in consequence of the determination of blood to the skin due to its state of irritation, for in order to reach the skin the blood must pass through the subcutaneous areolar tissue. It would be wrong, however, to suppose that the effusion was confined to the neighbourhood of the skin; we find it in the areolar tissue of the lungs, and in the serous cavities; in the former, because of the necessarily large flow of blood to the lungs; and in the latter situation, because of the great tenuity of the tissue of the serous membrane, which affords but little obstacle to the escape of the serous part of the blood.

Thirdly.—All this is favoured by the impoverished state of the blood. If the scarlet fever poison is not eliminated, it interferes with the proper nutrient changes which take place in the blood; and this is shewn by the imperfect development of red particles. I think that the poison of scarlet fever interferes with their formation in the same way as that of rheumatism does, and indeed other poisons likewise, inorganic, as well as animal—as for instance, lead. This impoverished state of the blood, undoubtedly interferes with the proper rate and vigour of the capillary circulation. That attractive force which I have already referred to, the capillary force, or *vis a fronte*, cannot be so vigorous when the blood is deficient in all or nearly all its solid ingredients, as when the fluid is healthy. It is not improbable, likewise, that there may be some other special chemical condition of the blood. Magendie and Poiseuille found that the introduction of alkalies into the blood occasioned a great retardation of the circulation through the capillaries, and consequent dropsical effusion: what the precise condition of the blood is in scarlatina has yet to be shown; at present we can only conjecture that some such abnormal state of it does exist; that is to say, that, besides containing too much water, and too little colouring matter, it contains some special chemical agent likewise, which interferes with its proper vital changes.

[In the *treatment* of the dropsy which follows scarlet fever, Dr. Todd recommends as the most valuable remedy, taken singly, the warm-bath, which acts by allaying the irritation of the skin and kidneys. It must be used once or twice a-day, or less frequently, if it appears to depress the strength. Next in importance are hydragogue purgatives, and such of the milder diuretics as do not irritate

the kidneys; as liquor. ammon. acet., or bitartrate of potash, especially the latter. If after a few days of this treatment, the affection does not yield, small quantities of blood may be taken from the loins by leeching or cupping. Dr. Todd says:]

In pursuing this treatment, I pray of you to regard it not as antiphlogistic, but calmative and eliminatory, soothing cutaneous and renal irritation, eliminating water by the bowels, the kidneys, and the skin. For whilst using these remedies you must always support your patient by nourishing food, and often you must stimulate: frequently you will find the most signal benefit derived from giving port wine. Do not, when you feel that your patient's strength needs it, be deterred from giving stimulants by the fear of exciting fresh irritation of the kidneys. Your best guide as to the propriety of continuing stimulants or any other food, is the facility with which your patient *digests* them. If they create flatulence, gastric distress, pain, or any other symptom referable to the stomach, you must diminish the quantity or stop the supplies.

Sometimes in the course of this disease you have symptoms of head affection. These arise either from dropsy of the ventricles, or from poisoning of the brain by retained urea. Free counter-irritation immediately and extensively applied to the nucha or the scalp, is the best remedy; and generally speaking, bleeding, local or general, is inadmissible. Sinapisms, succeeded immediately by blisters, are most valuable remedies in these head affections.

Medical Gazette, Feb. 23, 1849, *p.* 308.

[In a subsequent lecture, Dr. Todd makes the following remarks on the urine of the boy whose case is mentioned above. He says:]

Some of the urine of this patient has been collected in this white vessel (a *white* vessel is particularly useful for this purpose, as it shows the colour of the urine so well): you observe at the bottom a deposit of a dark sooty matter, having a shade of red: this depends on the presence of numerous blood-corpuscles, which are blackened by the acid of the urine, and also of particles of lithic acid. So long as the urine exhibits this character, so long our patient requires careful attention, as the presence of blood or of lithic acid, and especially of both, indicates a disturbed state of nutrition of the kidney, probably an irritated state of it. A simple way of ascertaining what is the cause of the smoky discolouration of the urine is to apply the test for albumen: if the presence of that is indicated, we may infer that there is blood; but if it is not present, we conclude that lithic acid is the sole cause of the appearance. But the best mode of determining this question is to examine the sediment with the microscope, when both the blood globules and the grains of lithic acid will be at once recognised, if they exist, by their characteristic appearances. But whichever it be, it need make no difference as to the treatment; for this deposit of lithic acid, or the presence of blood in the urine, indicates a more or less congested, perhaps an irritated, state of the kidney, to be relieved

by a certain amount of antiphlogistic treatment. It is in this stage of the disease that, as I think, most benefit is derived from the occasional application of one or two leeches to the region of the kidneys, care being taken not to allow much loss of blood. In children this precaution is the more necessary, as they are so prone to great hæmorrhage from leech-bites.

[Dr. Todd then proceeds to speak of acute inflammatory dropsy. After relating a case, and mentioning the ordinary symptoms, he makes the following remarks on the *complications* which sometimes occur:]

a. Intrinsic complications, or those connected with the kidney itself:—

1st. The most common effect of the renal irritation which comes on so early in these cases is a great increase in the quantity of epithelium formed in the renal tubes, and the desquamation or casting off of this epithelium in considerable quantity. In scarlet fever a similar condition of the skin and of the kidney is apt to exist at the same time; as there is an inordinate shedding of epidermis, so there is also of renal epithelium: but in these cases the desquamative state of the kidney exists without a corresponding desquamative condition of the skin.

2nd. Hæmaturia. Probably whenever the irritation is sufficient to cause desquamation it always produces the escape of *some* blood; but this is generally in so small a quantity as only to cause a smokiness of the water. Sometimes, however, the hæmorrhage is considerable, and when it is so it constitutes the most difficult symptom for the physician to contend with. Perhaps you may remember a case we had in the hospital in the summer, in which the first symptoms were suppression of urine and universal dropsy; the secretion of the kidneys was soon after re-established, but with it a most extensive hæmorrhage from the kidneys, so that it became no longer a case of *dropsy*, but one of *hæmaturia*. That case exactly represents what is too apt to take place in this acute inflammatory dropsy. If the primary state of irritation or inflammation of the kidney does not go off by resolution, it is very apt to assume this hæmorrhagic condition. The vessels, long dilated by the pressure of an undue afflux of blood, suffer in their contractile power, and, becoming greatly weakened, give way at various points: nor do they recover until the general nutrition of the kidney is restored, the undue afflux of blood removed, and the gland reduced to its natural size by the discharge of the great mass of epithelium which distended its tubes, and contributed greatly to its enlargement.

3rd. A third and much more formidable complication is when the inflammatory state passes into suppuration. This is different from the ordinary or phlegmonous suppuration of the kidney, in being much more extensive, and having several suppurative centres, thereby leading to a more complete and extensive disorganization of the kidney.

b. A very formidable complication of this form of dropsy is that which arises from the inflammation of one or more of the serous membranes, which sometimes supervenes. A man may be going on to all appearance very well, with, however, a diminished secretion of the kidney, when suddenly an attack of pleurisy sets in with more or less fibrinous or serous effusion; and in some instances the inflammation is not limited to the pleura, but the pericardium and peritoneum are affected. I have seen inflammation of all the three cavities come on in the same day. Such cases are, of course, extremely rare, but a serous effusion into one or more of the great cavities—most commonly into the peritoneum—is of very frequent occurrence, in consequence, probably, of the diminished density of the blood. There is at all times a great tendency to it. The most probable explanation of these phenomena is this:—Owing to the imperfect action of the kidneys, the urea, as is proved by abundant evidence is not eliminated from the blood, but accumulating there, is thrown off in some minute quantity by that slight effusion or halitus that is constantly going on in the serous membranes, and thus becomes a source of irritation, in just the same way as we have seen the rheumatic poison a source of inflammation of the synovial membrane of the knee joint. Hence you have increased afflux of blood to these surfaces, with generally serous effusions, and in some instances formations of lymph and adhesions. And I think it is in this class of cases, and also in those renal diseases connected with gout and rheumatism, that you most frequently find serous inflammation: they do not, I think, occur so commonly with the *true fatty* disease.

It is very rare to meet with arachnitis in acute dropsy. States of delirium, and even mania, often supervene; but these are due to a disturbed nutrition of the brain itself; either due to the watery and pale state of the blood, or to the irritation of the brain by retained urea. When you examine cases of this description after death, you find no evidence of recent serous inflammation, but only a pale state of the brain, which is of less than its normal bulk, and is surrounded with more subarachnoid fluid than is usual in the state of health. The delirium in these cases is very analogous to that which occurs in rheumatism and gout.

c. Lastly, you may have as a complication of this dropsy an irritated state of liver, coexistent with the analogous state of kidney; and it is not improbable that this may be the reason of the greater frequency of serous effusion,—of dropsy of the peritoneum, than of the other serous sacs. In all instances when the liver is irritated, you may expect to find some degree of yellow discolouration of the skin, and the dropsy not confined to the areolar tissue, but affecting the peritoneum also.

Pathology.—What conclusions may we come to as to the *pathology* of acute dropsy? We know that the kidneys are in a state of congestion, which is obviously denoted by their appearance: the cortical substance is red and congested; the Malpighian bodies being large, and full: the redness of the cortical substance is in

strong contrast with the whiteness of the tubular portion, which is caused by the abundance of epithelium with which the tubes are filled. If examined with a microscope in an early stage, we can see the epithelium quite filling the tubes. We thus obtain clear evidence of an irritated state of kidney, and we also know from the previous history of the case that there has been such exposure as would be likely to arrest the excretion by the skin; and thus we have very much the same conditions supplied as in dropsy from scarlet fever—namely, an irritated state of kidney, and an abnormal state of skin.

No doubt, the secretion of the skin being checked, the lactic acid which should have passed off by it makes its way out through the kidneys, there acting as a source of irritation: it produces congestion, and this congestion so interferes with the function of the organ that the secretion ceases: the water that should be eliminated is not, but accumulates in the blood; and this watery blood transudes the parietes of the capillaries, while the particular portion of the areolar tissue into which it shall be poured—the subcutaneous—is determined by the irritated state of the skin, which attracts the blood to it in large quantity. The pathology of this form of dropsy is, then, in all essential points the same as that of dropsy after scarlet fever.

[The *prognosis* in these cases, Dr. Todd remarks, may be favourable, except we have reason to suspect fatty disease of the kidney, the symptoms of which are very insidious. Speaking of this condition, he says:]

The deposit begins to be formed in a few sets of tubes; it gradually extends itself, producing partial congestion of the kidney. At first these congestions are not sufficient to affect the physical condition of the urine, which if examined at this period would not afford the slightest indication of disease. By and by some of the Malpighian bodies become so filled by the retardation of the flow of blood through them, that the serum filters through them, and passing off with the urine, makes it albuminous. This escape of serum offers some relief to the congested parts of the vascular system of the kidney; and if the cutaneous secretion is fairly kept up, and the digestive organs act normally, the patient goes on for a considerable time—sometimes, perhaps, for years—without being aware that there is anything wrong with his kidneys. But let any check to the perspiratory action of the skin take place, as from exposure to cold, and immediately the renal congestion becomes general, and dropsy occurs rapidly, and these symptoms show themselves the more rapidly, and the more completely, because of the previously existing partially congested state of the kidney, and the more or less impoverished state of the blood.

Cases such as these are of very frequent occurrence in the London hospitals, and many of the instances of cured or relieved Bright's disease are of this description. The patient receiving the care and comforts of an hospital, his skin quickly resumes its nor-

mal action, the kidneys cease to be congested, the urine flows freely, and the dropsy disappears.

To enable you to arrive at a correct opinion as to the fate of a patient suffering from acute dropsy, you must look carefully to the state of the kidney, the liver, and the heart. You should examine the urine daily; for this purpose you will derive the greatest help from the microscope, not only on account of the rapidity with which it supplies you with the information you seek, compared with the slowness of chemical operations, but because you can determine by it the presence of various matters in the urine, which chemistry could not disclose to you; such is apithelia, casts, &c. By it you can recognise in two or three minutes, if they exist, blood corpuscles, lithic acid, epithelium cells, and pus globules; and hence you may at once determine whether the smokiness is due merely to lithic acid, or to hæmorrhage,—whether the kidney is in a desquamative state,—whether it has passed on to a suppurative—or whether its tubes contain fatty epithelium. Therefore, if you wish to obtain an accurate knowledge of the condition of your patient, learn to recognise all these substances by the microscope, and inspect the urine from day to day.

[The treatment of inflammatory dropsy, consists 1st., in the use of the hot-air or warm bath, and 2nd., in local bleeding; general bleeding is usually to be avoided, but may be resorted to when there is congestion of the lungs, and the patient is young and robust.]

3rd. Purgatives, as indirect methods of relieving the congestion, are of great value; they eliminate water and various morbid matters.

4th. Sudorifics may also be employed, and of these the best is the liquor ammoniæ acetatis, in at least half-ounce doses, two or three times a-day. This may occasionally be combined with tartar emetic. Dover's powder is generally less suitable, on account of the tendency of the opium to check secretion.

5th. Diuretics. When the congestion of the kidney has been relieved, diuretics may be given with advantage. Of all this large class the best, I think, is the common cream of tartar, in doses of from half a drachm to a drachm frequently during the day. If you give larger doses it acts on the bowels, and being carried off by them, does not prove a diuretic. Digitalis, with due precaution, is also very useful.

Irritative diuretics (as cantharides, squills) must be avoided in cases of this kind for obvious reasons, although they are very serviceable in other forms of dropsy. Broom tea, or the compound decoction of broom of the Pharmacopœia, is also useful; and the latter probably derives some advantages from the taraxacum which it contains. The diuretics first mentioned, however, are unquestionably the most to be relied upon, and the most efficient.

There is one thing that I must caution you against in the treatment of acute dropsy, and that is, the use of mercury. This mineral, so valuable in some diseases, is in these cases useless and

even mischievous; at any rate I have failed to observe any benefit from it. For these reasons it is better to abstain from its employment, unless occasionally you may have recourse to it as a purgative. But even for this purpose there is no absolute need for you to use it, as there are many other medicines which answer as well if not much better. Moreover, in all cases of imperfect action of the kidneys, whether acute or chronic, patients are quickly salivated, and the salivation is very apt to prove troublesome and painful: large sloughs form in the mouth, and the fœtor of the breath becomes intolerable to both the patient and his attendants.

Medical Gazette, April 6th, 1849, *p.* 582.

3.—*Treatment of Dropsy by the Juice of the fresh Root of the Elder.*—Boerhaave, Gaubius, Sydenham, and more recently, Martin-Solon, have recommended the juice of the inner bark of the common elder *(sambucus nigra)* as of great efficacy in dropsies. M. Rene Vanoye strongly recommends, for the same purpose, the fresh juice of the root. The following are the conclusions which he has arrived at, as stated at p. 246 of Bouchardat's *Répertoire de Pharmacie* for Feb. 1849:—

1. The fresh juice of the root of the elder may be administered in all serous accumulations and infiltrations, which require the use of drastics. 2. It generally acts with greater energy and rapidity than the most active purgatives. 3. There is no advantage in combining it with drastics or diuretics; its action is never more apparent than when used alone, and to the exclusion of other treatment. 4. The first doses ought to be pretty strong; when they cause vomiting, the use of the medicine must not be abandoned, but it ought to be suspended for some days, if the vomiting be continued and severe. It is rarely necessary to give more than from 120 to 150 grammes, by the mouth, in spoonfuls. 5. Occasionally, this juice cures dropsies when other means fail. 6. The dangers connected with its employment are not serious. M. Vanoye adds: "I hope that these assertions, founded on actual observation, will induce physicians, especially those who practise in the country, to have recourse to a substance which can be used with such facility, and the efficacy of which is so great."

Pereira does not mention the root of the elder; but with reference to the *inner bark*, he says: "It has been used as a hydragogue cathartic in dropsy. It may be given in decoction (prepared by boiling one ounce of the bark in O ij. of water to O j.) in doses of f. ʒiv. Smaller doses have been used as an aperient and resolvent in various chronic disorders."—*Edit.* 1842, pp. 1442.

London Journal, April, 1849, *p.* 380.

4.—ON THE BLOOD AND URINE IN GOUT, RHEUMATISM, AND BRIGHT'S DISEASE.

By Dr. A. B. Garrod.

[At page 12 of our seventeenth volume, will be found a short statement of the conclusions come to by Dr. Garrod upon this subject. We here reprint them at greater length. With respect to gout, Dr. Garrod says:]

1st. The blood in gout contains *uric acid* in the form of urate of soda, which salt can be obtained from it in a crystalline state.

2nd. The uric acid is diminished in the urine, immediately before the gouty paroxysm.

3rd. In patients subject to chronic gout with tophaceous deposits, the uric acid is always present in the blood, and deficient in the urine, both absolutely and relatively to the other organic matters, and the chalk-like deposits appear to depend on an action in and around the joints, &c., vicarious of the "uric-acid-excreting" function of the kidneys.

4th. The blood in gout sometimes yields a small portion of urea (no albumen being present in the urine).

The experiments and analyses which favour these conclusions were chiefly made on patients in University College Hospital.

[With respect to the state of the blood in acute rheumatism, Dr. Garrod says:]

The results which I obtained appear to indicate that—

In rheumatism, the blood contains no more uric acid than in health; and no urea can be detected in 1000 *grains of serum.*

Many cases were taken to prove this conclusion.

In acute rheumatism there is no evidence of any deficient "uric-acid-secreting" power in the kidneys, and the urine is also generally loaded with urea.

Blood from patients suffering from *Bright's disease*, and *albuminuria after scarlatina*, was then examined: the results of these analyses appear to show, that—

1st. *Uric acid is always present in the blood in albuminuria. The quantity, however, greatly varies: when the functions of the kidneys are much impaired, it exists in quantities almost as great as in gout; in other cases its amount is small, but it usually exceeds that found in ordinary blood.*

2nd. *Urea always exists in large quantities in this blood, (a fact which has been long since proved), and no relation is found between the amounts of urea and uric acid.*

3rd. *The kidneys are always deficient in their power of throwing off urea; but with regard to the uric acid, their excreting function may be impaired or not.*

The results of these experiments on the condition of the blood and urine, prove that uric acid is not a product of the action of the kidneys, as is frequently supposed, but that it is merely excreted

from the system by these organs. They also appear to indicate that the excreting function of the kidneys, with regard to the solid portion of the urine, is not simple, but that the urea and uric acid are separately eliminated; also that one of these functions may be impaired or destroyed, the other remaining entire. With regard to the solid and fluid portions of the urine, Mr. Bowman has already shown the probability of different structures in the kidneys being concerned in their excretion.

It appears also probable that as, in albuminuria, the urea-excreting-function" being chiefly impaired, we find a vicarious discharge of this body in the dropsical effusions; so, in gout, the "uric-acid-excreting-function" being defective, the chalk-like deposits are produced, by a similar vicarious discharge of urate of soda.

Gout would thus appear partly to depend on a loss of power (temporary or permanent) of the "uric-acid-excreting-function" of the kidneys; the premonitory symptoms, and those also which constitute the paroxysm, arising from an excess of this acid in the blood, and from the effort to expel the "materies morbi" from the system. Any undue *formation* of this compound would favour the occurrence of the disease; and hence the connection between gout and uric acid, gravel and calculi; and hence the influence of high living, wine, porter, want of exercise, &c., in inducing it. This hypothesis would also explain two facts which have been regarded as militating against its humoral pathology; viz., the *hereditary* nature of the affection, and also its frequent occurrence in *low states* of the system; for we can understand that the peculiarity of the kidney, with reference to the excretion of uric acid, may be transmitted; and likewise, that when the function in question is permanently injured, it will not require an excessive *formation* of the acid to cause its accumulation in the blood.

Dr. Todd's observations on what he terms the "gouty kidney," appear to favour this view. This hypothesis would also remove gout from acute rheumatism, for no excess of uric acid was found in the blood in this affection. Again, if we take into consideration the causes of the latter affection and the subjects in whom it occurs, we must be led to consider the two diseases as analogous only as far as they both affect similar structures. What greater analogy exists between gout and rheumatism, than between any two skin diseases?

Medico-Chirurgical Transactions, 1848, *p.* 84.

5.—*Observations on Gout.*—[A writer in the British and Foreign Medico-Chirurgical Review observes:]

As to the therapeutics of gouty affections, we need scarcely advert to the necessity of investigating the condition of the kidneys and skin, but especially of the former, and of specially noticing the urinary and cutaneous secretions. To restore the due action of the skin and kidneys is, in a great majority of cases, the principal indication, and, when fulfilled, suffices for the cure. Modern chemistry has shown that colchicum has the effect of increasing the

amount of lithates, or lithic acid, in the urine, when its excretion is suppressed—a fact long known, although recently "discovered" by some modern investigators. Professor Chelius found that the quantity excreted was nearly doubled after taking the remedy for twelve days. In those cases, however, in which the urine is loaded with lithates, due probably to an inordinate production of them in the organism, colchicum has, apparently, the effect of clearing the urine of them. Dr. Graves published statements to this effect, in a clinical lecture in the seventh volume of the London Medical Gazette, manifestly being of opinion that they were inconsistent with, and opposed to, the generally-received humoral pathology of gout. There does not appear, however, any discrepancy in these facts; colchicum may facilitate excretion of urea or the urates if retained, by its direct action on the blood and the excreting organs; or when formed in inordinate quantities, and at the same time excreted—at least in part—may restrain that inordinate formation by its action on the tissues.

Be this as it may, colchicum is an invaluable remedy in every form of gout. It should not be given indiscriminately, and in large doses only in the peracute forms. In all the more chronic forms, minute doses are indicated, as, for example, the fifth or fourth of a grain of the acetous extract, and in combination with alkalies, chalybeates, minute alterative doses of the salts of mercury, or with the salts of iodine, particularly the iodide of potassium. The chlorides and bromides, especially in the homœopathic doses found in mineral waters, are very useful in the asthenic forms. Where colchicum cannot be borne, even in minute doses, the ranunculaceous plants may be tried, as the black hellebore, or the common buttercup of the meadows—ranunculus acris. The ranunculaceæ were well known to the ancients as being powerful remedies in gouty affections.

British and Foreign Medico-Chirurgical Review, April, 1849, *p.* 476.

6.—*On the Treatment of Rheumatic Gout by Lemon-juice.*—By Dr. G. O. Rees, F.R.S., Assistant Physician to Guy's Hospital.—[A girl, 18 years old, was admitted into Guy's Hospital under Dr. G. O. Rees, on the 8th December, suffering severely from "Rheumatic Gout"; (acute articular rheumatism?) A calomel and rhubarb purge was given, and then lemon-juice, in half-ounce doses, with a little camphor mixture, thrice a-day. By the 13th the pain had entirely left her; it did not return,—and after the administration of tonics, she left the hospital. Dr Rees observes:]

It is principally owing to the very surprising effects which I have observed from the use of lemon-juice in the treatment of rheumatic gout, that I have been induced to notice this case. I have been now for several months in the habit of prescribing the remedy, with such marked and, I may add, rapid benefit, that I am unwilling to delay bringing it before the notice of practitioners.

Among the out-patients at Guy's Hospital, I have met with several prominent examples of cure, notwithstanding that such in-

stances are necessarily derived from a class of persons who are by no means able to assist our treatment by following out our directions either as regards diet or regimen. The early relief from pain was such, that had any one unacquainted the remedy in use watched the progress of the case, they would almost inevitably have concluded that sedatives had been resorted to.

I first had recourse to lemon-juice for the cure of rheumatic gout from a belief that the vegetable acids (probably owing to the excessive quantity of oxygen entering into their composition) contributed to effect the transformation of the tissues generally, and because lemon-juice was the most palatable form in which such class of remedies could be applied. Moreover, it appeared probable that the supercitrate contained in the juice, though in small quantity, was a form of alkaline salt likely to contribute to the alkalinity of the blood in its transformations; knowing as we do, from the examination of the urine, that such organic compounds become converted into carbonates during digestion and circulation.

Medical Gazette, Jan. 25, 1849, *p.* 156.

7.—*On the Treatment of Acute Rheumatism by Nitrate of Potash.*—By Dr. W. R. Basham, Physician to the Westminster Hospital.—The author takes, as the basis of his essay, the following facts: 1st, that in acute rheumatism, as in other inflammatory diseases, the most important changes in the composition of the blood are the increased quantity of fibrine, and the deficiency of the saline ingredients; 2nd, that where this state of the blood exists there is a special disposition to the deposit of fibrine, and the formation of adventitious tissues; while in diseases in which the fibrine is deficient, and the salts in excess in the blood, the blood does not coagulate, and hæmorrhages of a passive character occur; and 3rd, that although, as his own experiments have satisfied him, saline solutions have not the power of dissolving coagulated fibrine, yet certain salts in solution, mixed with the blood at the moment of its escape from the body, possess the property of suspending or retarding the separation of the fibrine. He next inquires whether any therapeutic principle can be derived from these facts, and proposes the question, whether saline remedies, largely employed, may not suppress the tendency to the fibrinous exudation, or retard it, so as to give time for other remedies to diminish the proportion of fibrine present in the blood. With reference to this question, he alludes to the observations of several physicians on the use of nitrate of potash in acute rheumatism, and details his own experience of its effects. He gives one, two, or three ounces of nitrate of potass, largely diluted, (in two quarts of water,) in the twenty-four hours. In the majority of cases no obvious effect is produced on the force or frequency of the pulse, the digestive functions, or the quantity of urine exuded. But the urine always acquires a high specific gravity, and nitrate of potass may be detected in it. The swelling, heat, and pain of the joints affected with rheumatism are relieved in a most marked degree, even when no other remedies are employed

at the same time. There is a certain amount of exemption from cardiac complication; and cardiac inflammation, when present, is more amenable to remedies. In a case which the author relates, he examined the blood of the patient before the commencement of the saline treatment, and again after this treatment had been continued for some days. In the first instance it was buffed and cupped, the fibrine was in excess, and the salts were deficient. After the administration of the nitre there was no buffy coat, the proportion of fibrine had diminished, and that of the salts greatly increased. The author presumes, therefore, that while the internal use of the nitrate of potass assisted to restore the proportion of the saline constituents, the other treatment tended to lessen the excess of fibrine. Some remarks of Mr. Gulliver have led the author to investigate the effects of the external application of saline matters to parts affected with rheumatism. His experiments have been principally made with nitrate of potass. In chronic rheumatism he has used the iodide of potassium, and in gout the bibasic phosphate of soda. He applies the saline substance by means of the spongio-piline, a portion of which, large enough to envelope the part affected, having been moistened with water, the salt employed is sprinkled in powder freely on the spongy surface: it is then applied to the part, and secured with a roller. In numberless instances, by this simple treatment, he has witnessed the most palpable and instant relief to the local inflammation. Constitutional remedies were employed at the same time, but the relief was proved to be due to the saline applications, by the fact, that where several joints were affected, only those were relieved to which the salt was applied. At the end of the paper the author gives an abstract of seventy-nine cases of acute rheumatism, showing the results of treatment, and other particulars.

[After the reading of Dr. Basham's paper, at the Royal Medical and Chirurgical Society, Dr. H. Bennet mentioned the success which had followed M. Gendrin's use of the remedy under discussion; after which]

Dr. Basham said, that in only two cases had he treated the disease by nitrate of potash alone. The acute, inflammatory symptoms usually gave way on the third or fourth day; and it was important to state, that in no one case treated by the nitrate of potash had there been any relapse. This was a strong recommendation of the value of the treatment, when we recollected how common relapses were, when the other modes of treatment were employed. In the first instance, he had given as much as four ounces of the salt in the twenty-four hours, but he had now reduced the quantity to one or two ounces in that period. A great quantity of the salt escaped by the urine, the quantity of which was not much increased, but its specific gravity was a great deal higher, averaging between 1030 and 1040. This increase in the specific gravity he considered was due to the potash.

Dr. C. J. B. Williams did not think this increase in the specific

gravity of the urine was due to the nitrate of potash; but regarded it as the result of the elimination of urea and the salts of lithic acid from the system. This, or an increase in the quantity of the urine, was a circumstance which obtained when elimination was treated by other remedies. The result of his own experience by another treatment, that by salines and colchicum, with bloodletting when necessary, was, that convalescence usually took place from the third to the sixth day, and a cure was effected in from two to three weeks, according to the severity of the cases. Feeling doubtful, at one time, as to the relative effects of the salines and colchicum on the disease, he determined to treat some cases entirely by the former, and with this view, gave in sub-acute rheumatism the carbonate and tartrate of soda freely every two or three hours, until four or five drachms were given in the day. These remedies mitigated the pain and fever, but the rheumatism continued, although the salines were unremittingly persevered in for ten or twelve days. Colchicum was then added, and in three days the pain was gone, the specific gravity of the urine becoming, at the same time, much higher, from the presence of urea and the lithates. It was remarkable, too, that the urine often retained its acid property, even in cases where the perspiration was acid.

Lancet, Nov. 25, 1848, *p.* 588.

8.—*On Muscular Rheumatism.*—By M. Valleix.—The essential character of this affection is *pain,* and no anatomical lesion belongs to it, unless it becomes complicated with other affections. It possesses various analogies with neuralgia, and the two affections may be easily transformed into each other. If the pain remain concentrated in the nerves, we find isolated, characteristic, painful spots —a *neuralgia,* properly so called. If it spread to the muscles, the contractions of these are especially painful, and *muscular rheumatism* is present; while if it extend to the skin, we have a *dermalgia.* All these forms of the same affection may unite together, or by two and two.

The *diagnosis* of *acute* muscular rheumatism from inflammation is generally easy, owing to the absence of the well-known signs of the latter. It becomes more difficult when the muscles over a joint are those affected; and on no account can the identity of muscular and articular rheumatism be admitted. In respect to its diagnosis from neuralgia, it may be observed that it is much more rare to mistake a rheumatism for a neuralgia, than the reverse. In rheumatism, the pain and tenderness are more diffused, and are found rather at the attachments of muscles than in the course of the nerves. Muscular action causes an amount of suffering altogether disproportionate to the other spontaneous or excited pains; while in neuralgia the reverse is generally observable.

Prognosis. Chronic muscular rheumatism is more obstinate than chronic neuralgia; while exactly the reverse is true of the *acute* form. However severe, it is rare to see it continue longer than a week; while neuralgia may persist, with all its original severity,

for weeks or months. Rheumatism is generally a far less serious affection than neuralgia; it does not produce the same perturbation of the economy, and is more easily dissipated. The same is true of the *chronic* form, for we only now and then see paralysis of one or several muscles result; while the subject of neuralgia not unfrequently continues to lead a miserable existence, deprived of the use of his limbs.

Treatment. These two diseases have too often been treated alike, and with great mischief to the subjects of them; for while bleeding may benefit rheumatism, it is very hurtful to neuralgia; and flying blisters and intercurrent cauterization, so useful in acute neuralgia, are of little avail in rheumatism. In *chronic* cases, hydrotherapeia, shampooing, and thermal waters are more useful in rheumatism than in neuralgia: but in this stage the treatment of the two diseases approximates much more than in the acute one.

Among the different species of muscular rheumatism may be noticed that which affects the *muscles of the head;* sometimes the occipito-temporal, the masseters, or temporals, and at others the muscles of the eyes or cheeks being those which suffer. This pain is distinguished chiefly by the exacerbation which is produced by causing the sudden movement of the muscles affected; furnishing a far stronger contrast with the spontaneous pain than is the case with other pains of the head, as well as by being limited to the muscles in question. This form best yields to the external application of the *cyanide of potassium;* and of all forms of cephalalgia it is that which is least benefited by blistering the nape, so indiscriminately resorted to. This rheumatism of the head is found also generally worst on rising in the morning, especially in *moderately* cold and damp weather. This is attributable to the parts having been exposed to the cold during the night (from which they would have been protected in *very* cold weather), and the simple precaution of covering them with a cap or handkerchief has not unfrequently relieved pains which have long obstinately persisted.

Besides a *torticollis*, rheumatism may show itself in the cervical region in the form termed by the author *cervicodynia*, in which there is a very variable amount of dull pain felt along the cervical region, and even extending to the epicranial muscles. It is much aggravated by stretching the head backwards, or keeping it bent forwards. It is easily transformed into a neuralgia, and may become confounded with this, as it may with congestion of the brain, when it extends to the pericranial muscles. The most successful means are, sea-water baths, cold affusion, cupping, and acupuncture. When the affection becomes chronic, it is very obstinate.

One of the most obstinate forms of muscular rheumatism, as also one of the most important, as it may lead to *paralysis of the deltoid*, is *rheumatism of the muscles of the shoulder*. In its acute form, it is distinguished with difficulty from articular rheumatism or acute arthritis. In its chronic form, it sometimes induces the above-named paralysis. Several cases are related by authors, in which paralysis supervened on painful affections of the shoulder; but

these are, for the most part, too imperfectly reported to enable us to judge whether this arose from chronic muscular rheumatism or inflammation. Others are more explicitly detailed, and two of these are quoted by the author, in which acupuncture, after the failure of other remedies, effected a cure.—*Bulletin de Thérapeutique*, tom. xxxv., pp. 296–307, 385–96.

British and Foreign Medico-Chirurgical Review, Jan., 1849, *p.* 265.

9.—*On the Action of Medicines on the Secreting and Excreting Organs.*—By Dr. A. B. Garrod.—The function of the excreting organs is to remove from the system matters produced during the metamorphoses of the tissues and food, and which are no longer of any service in the animal economy. Now we know that during life changes of an oxidizing character are constantly taking place, the ultimate effects of which are much the same as if the tissues had undergone ordinary combustion, which, however, is not of a perfect character, for the carbon and hydrogen are not entirely converted into carbonic acid and water; these elements partly assuming the form of less oxidized compounds; and again, the nitrogen, although it is mostly thrown out as urea, (hydrated carbonate of ammonia,) yet is also eliminated as uric and hippuric acids, kreatine and kreatinine, &c. These various products of decomposition are removed from the system by different channels, some of the excreting organs separating chiefly the nitrogenized, others the carbonaceous compounds, &c. In health there are removed,—

By the lungs ...	Carbonic acid. Water.	
By the skin ...	Water. Carbonic acid (a little.) Nitrogenized matters containing urea.	
By the kidneys	Water. Urea. Uric acid. Hippuric acid. Kreatine and kreatinine. Colouring matters, &c. Fixed salts.	
By the liver & intestines ...	Real bile (afterwards reabsorbed.) Bile pigment Cholesterine, &c. Indigestible matters; peculiar secretion from intestinal canal, &c.	Fæces.

We have already seen that the perfect performance of the functions of these various excreting organs is of the greatest importance, and that many diseased states of the system may arise from their defective action; thus, if the kidneys become injured, and urea, &c., accumulate in the blood, then dropsical effusions, affection of the brain, &c., may arise. Again, if the action of the liver is

stopped, the bile pigment not being thrown out accumulates, and seeks other means for its discharge, giving rise to the yellow skin, dark-coloured urine, &c., symptoms known by the term jaundice. If the lungs are unable, from any cause, to perform their function, apnœa takes place, from the inability to obtain oxygen, but partly, also, from the retention of carbonic acid in the blood, and so on with the other excretions. Many remedies which we are in the habit of administering are found in these various excretions, having first been absorbed from the stomach into the blood; in some instances, these agents pass out in the state they were administered; in other cases, they become altered by the action of the blood, and are eliminated in a modified form. Many of the substances which have been found in the urine, &c., have escaped detection in the blood; no doubt this has arisen partly on account of the difficulty in detecting substances in this fluid, and partly, also, from the extreme facility with which they are removed by the excreting organs. Certain bodies, however, have been discovered in this fluid, amongst which I may mention iodine, mercury, baryta, cyanide and sulphocyanide of potassium, hydrochlorates of ammonia, indigo, rhubarb, musk, camphor, &c.; several substances have also been found deposited in the solids, as mercury and madder in the bones, silver in the skin, copper in the liver, lead in the brain, spinal cord, and muscles. The kidneys appear very active in removing from the blood matters which are abnormal to its constitution, and the substances which, after their administration, have been detected in the urine, are very numerous, as they have been more sought for in this fluid than in any other excretion.

Some substances are found in the urine in an altered state, and the nature of the changes which they undergo is exceedingly interesting. For example, the salts of the vegetable acids, as the alkaline tartrates, citrates, lactates, acetates, malates, &c., are decomposed in the system, and eliminated as carbonates of the bases; this change is effected by the oxidizing action of the system, and during their metamorphoses they probably produce some change in the respiratory process; hence, also, the influence which even acid fruits, as oranges, lemons, &c., possess in causing an alkaline condition of the urine, the acids being decomposed into carbonic acid and water, and the carbonates only escaping through the kidneys. Certain other acids undergo a different kind of metamorphoses—for example, benzoic and cinnamic acids; these are not broken up into carbonic acid and water, but, by uniting with other matters found in the blood, are capable of forming an acid which is a normal constituent of the urinary excretion. When benzoic acid is taken into the stomach, and the urine passed during the next five or six hours collected, it is found to contain, not benzoic acid, but in its place hippuric acid. The amount of hippuric acid exceeds that of the benzoic acid administered. Mr. Ure, who first observed this change in the human subject, thought that the benzoic acid in its passage destroyed the uric acid, and by assuming its elements, became converted into hippuric acid; but when repeating the experiment, I

found this to be an error, for the amount of uric acid in the urine remained the same before and after its administration.

By the use of these bodies as remedies we produce a very acid condition of urine, enabling this fluid to hold in solution a large amount of phosphatic salts; and hence, in some cases where these are deposited, it proves a useful therapeutic agent. A case illustrating this occurred recently under my care in University College Hospital. A woman suffering from slight paraplegia was voiding urine, alkaline in reaction, and which deposited so large an amount of phosphates, as frequently to occupy half the height of the fluid in the glass. The administration of the usual remedies, as nitric acid, Pareira brava, &c., did not produce any effect on this condition of the urine; but when benzoic acid was given in large doses, (two scruples four times a day,) the phosphatic deposits soon became lessened, and in a few days entirely ceased; the urine also at the same time became acid when voided, and did not very readily undergo decomposition. When the remedy was discontinued the abnormal condition of the urine did not return. In such cases it is probable that the benzoic acid not only imparts to the urine the power of holding the phosphates in solution, but acts also by stimulating the mucous membrane of the urinary passages, and correcting the secretion of an abnormal mucus, which often serves as a ferment, and causes the decomposition of the urea into carbonate of ammonia.

Lancet, Dec. 30, 1848, *p.* 709.

10.—*On the Treatment of Cancerous Growths.*—By Dr. J. H. Bennett, Professor of Medicine in the University of Edinburgh.—In the chapter on the rational treatment of cancerous and cancroid growths, Dr. Bennett considers—1, the means of retardation and resolution; 2, the means of extirpation; and 3, means of prevention. The growth of cells in animals and vegetables is favoured by an elevated temperature, a proper supply of moisture, room for expansion, and certain localities; and, on the other hand, is retarded by excessive cold, dryness, want of room, and unfavourable positions. Now as cancerous and cancroid tumours chiefly or entirely advance by the development and growth of cells, by placing the affected part under the circumstances unfavourable to cell development and growth, their progress may be retarded or arrested. The direct application of cold, therefore, when circumstances will permit of it, may be employed with this view. The cutting off the usual supply of fluids for a time, by the ligature of the arteries leading to the morbid growth, has also in some cases been apparently attended with good results. Pressure steadily and effectively applied, has, according to some practitioners, been used with excellent results. The apparatus invented by Dr. Neil Arnott, figured and described by Dr. Walshe, or that more recently invented by Dr. James Arnott of Brighton, with which external cold and dryness may be combined, seem the best fitted for carrying this mode of treatment into effect. The means of extirpation are: 1. The ex

cision of the part; 2. Chemical agents which destroy texture. It is well known, that many surgeons, discouraged by the frequency of the recurrence of cancerous diseases, feel indisposed to remove them by operation; the more especially as they believe that, in many cases, it hastens the fatal termination. Other surgeons, again, take a more favourable view of operative interference; and, believing that they have excised growths undoubtedly cancerous, which have never returned, and that in other cases, though ultimately unsuccessful, they have relieved the patients from much present suffering, and have thereby prolonged life,—advocate having recourse to excision. One of the arguments usually urged by those who are averse to excision, in most cases, has been, that it is barbarous to subject the patient to an operation, often very painful, when we have little hope of its being useful,—is now, in a great measure, removed by the late discovery of the anæsthetic effects of ether and chloroform, especially the latter. No doubt the imperfect methods, hitherto almost generally practised, of distinguishing between cancerous and cancroid growths accounts, in a great measure, for these discrepant conclusions of practical men. Dr. Bennett, after alluding to the successful results that have, in some cases, followed the excision of morbid growths,—proved by the microscope to be cancerous, — expresses himself in the following terms: "In like manner, by operating at an early period in all cases of suspected tumour, and keeping careful records, both of the minute structure (of the parts) removed, and of the ultimate results, much advantage would be gained to surgery. Lastly, by boldly excising all cancerous growths within his reach, when, after careful investigation, the surgeon has satisfied himself that no internal organ is affected, and repeating the operation so long as the return of it is merely local, I feel persuaded that not only in many cases would life be prolonged, and much suffering saved, but that some might be permanently cured. If this applies to cancerous, it doth so with tenfold force to cancroid growths, which everything that we know warrants us in asserting are much less fatal and malignant."

In discussing "the means of prevention," after pointing out how little confidence is to be placed in the internal remedies which have been recommended for correcting that unknown predisposition, in particular individuals, to cancerous exudation, he throws out some general views for regulating the constitutional treatment of cancer, founded upon the difference between tubercular and cancerous deposits, which he, however, admits are purely hypothetical. As Vogel states *(Pathological Anatomy of the Human Body, p.* 290), carcinomatous structures are distinguished from tubercular, by their higher organization. Dr. Bennett argues that in proportion as the power of cell-growth increases in cancerous growths, they abound more and more in fat, this excessive cell development must be materially modified by diminishing the amount of fatty elements, which originally furnish elementary granules and nuclei; and that a tendency to the formation of fat would seem, *à priori*, to be opposed to the cancerous tendency. "If a tendency to fat be an

antidote to tubercle, as I believe it is, spareness may probably be considered opposed to cancer. In the one case, we should do all we can to bring the nutrition up to, and above, the average; in the other, down to, and below it." This plan of treatment does not preclude the endeavours to invigorate the general health by exercise, and attention to the secretions and excretions. We might not have noticed such prophylactic suggestions, from their being so extremely hypothetical, were it not that our deplorable ignorance regarding the constitutional treatment, both empirical and rational, of cancerous affections, induces us to listen patiently to speculations regarding it, which, in other circumstances, we would not be inclined to tolerate.

The profession is much indebted to Dr. Bennett for this valuable contribution to our knowledge of the microscopic structure of cancerous and cancroid growths. It bears ample evidence of his great zeal, industry, and success, in pathological researches.

London Journal of Medicine, March, 1849, *p.* 248.

11.—*On the Use of Nitre in Purpura Hæmorrhagica, &c.*—By Dr. C. Carlyon, Physician to the Cornwall Infirmary, Truro.—[Dr. Carlyon was led to the employment of nitre in purpura hæmorrhagica, from high encomiums passed upon it in Dr. Parr's "Medical Dictionary," as a medicine in cases of hæmorrhage. It is to passive hæmorrhages, that the remedy is more especially applicable.]

By passive hæmorrhages, observes Dr. Carlyon, I wish to be understood to mean cases where the inflammatory action has either been subdued by depletion, or has not appeared to precede the hæmorrhagic condition. It is not, however, in these cases that I consider nitre entitled to any exclusive preference, but only in such cases pre-eminently as partake of the character of purpura,—cases in which the blood is supposed to be in a dissolved and supercarbonated state; thin and ichorous, as in malignant fevers, in contagious dysentery, in cholera, in purpura, and in sea scurvy. For the general argument in support of this extensive view of its use, I must refer to a report, by Mr. Charles Cameron, to the Navy Board, relative to its astonishing efficacy in scurvy, and to my own letter in the London Medical Gazette, Vol. VIII.

Discrimination, and the occasional interposition of purgatives, such, in particular, as combinations of rhubarb with carbonate of soda in full doses, will, nevertheless, be found indispensable; and when purpura hæmorrhagica supervenes, as it sometimes does, on a plethoric habit, even abstraction of blood, as a precursory measure, may be required. The diet should be the lightest possible, cold barley-water, or gruel, is the most appropriate. With respect to the best mode of exhibiting the nitre, I may repeat what I formerly said, viz., "that it has agreed best when given with an equal quantity of sugar, in cold water, in doses of from ten grains to a scruple, every two or three hours, and, in urgent cases, still more frequently. In the mild ordinary cases of purpura simplex, the

repetition of the dose three times a-day will be sufficient." Mr. Cameron's dose in sea-scurvy was one drachm, with which he recommends vinegar and water as a drink, but this is a larger dose than the stomach will ordinarily bear; still it is impossible to lay down any rule for the extent to which nitre may be given in any particular case, and it may be said generally, that, as long as the stomach is not offended, there is no danger of excess. I have often, on the other hand, found five-grain doses enough. In the progress of convalescence, it will be well to make camphor mixture the vehicle of the nitre, and ultimately to substitute carbonate of soda for the nitrate of potass, in a ten-drachm draught of camphor mixture, to be taken twice or thrice daily for some time. This, with a gradually improved diet, will supply the place of all other tonics.

Provincial Medical and Surgical Journal, Dec. 13, 1848, *p.* 683.

12.—*On a Remarkable Form of Anæmia.*—By Dr. Addison.—[At a meeting of the South London Medical Society, Dr. Addison described a form of anæmia which has not hitherto attracted much attention. It affects adult males, and comes on most frequently in an insidious manner.]

Its approach is first indicated by a certain amount of languor and restlessness, to which presently succeed a manifest paleness of the countenance, loss of muscular strength, general relaxation or feebleness of the whole frame, and indisposition to, or incapacity for, bodily or mental exertion. These symptoms go on increasing with greater or less rapidity: the face, lips, conjunctivæ, and external surface of the body, become more and more bloodless; the tongue appears pale and flabby; the heart's action gets exceedingly enfeebled, with a weak, soft, unusually large, but always strikingly compressible pulse; the appetite may or may not be lost; the patient experiences a distressing and increasing sense of helplessness and faintness; the heart is excited, or rendered tumultuous in its action, the breathing painfully hurried by the slightest exertion, whilst the whole surface bears some resemblance to a bad wax figure: the patient is no longer able to rise from his bed; slight œdema perhaps shows itself about the ankles; the feeling of faintness and weakness becomes extreme, and he dies either from sheer exhaustion, or death is preceded by signs of passive effusion or cerebral oppression. With all this, the emaciation or wasting of the body, though sometimes considerable, is not unfrequently quite disproportionate to the failure of the powers of the circulation—relaxation and flabbiness, rather than wasting of the flesh, being one of the most remarkable features of the disorder.

Dr. Addison next proceeded to give the details of several cases which had fallen under his own immediate observation. In only two of these did the patients recover: the one, a man below the middle period of life, who was looked upon as past all hope. and suspected to be suffering from some latent malignant disease, slowly but steadily recovered under the free use of brandy, but with the

singular result of the hair on one side of his head turning permanently grey, whilst the other retained its original brown colour. The second case of recovery occurred in a gentleman above middle age: it was by no means far advanced, but was sufficiently well marked to excite alarm. He left his business, quitted London, and sought recreation in the country. After a time he returned, and appeared to have shaken off the disorder almost entirely. In three cases only was there an inspection of the body after death, and *in all of them was found a diseased condition of the suprarenal capsules.* In two of the cases no disease whatever could be detected in any other part of the body. Dr. Addison inquired if it were possible for all this to be merely coincidental? It might be so, but he thought not, and making every allowance for the bias and prejudice inseparable from the hope or vanity of an original discovery, he confessed that he felt it very difficult to be persuaded that it was so. On the contrary, he could not help entertaining a very strong impression that these hitherto mysterious bodies—the supra-renal capsules—may be either directly or indirectly concerned in sanguification; and that a diseased condition of them, functional or structural, may interfere with the proper elaboration of the body generally, or of the red particles more especially. At all events, he considered that the time had arrived when he felt himself warranted in directing the attention of the profession to these curious facts. In thanking the Society for the patient hearing with which they had favoured him, he ventured to bespeak their interest not only in regard to the anæmia he had described, but also in cases of purpura, and some of the more anæmiated forms of chlorosis in the female, which he could not but regard as being more or less allied to the morbid state to which he had directed their attention. Indeed, not only had he found the anæmia in question occasionally occurring in connection with purpura, but had observed in cases of the latter disorder certain local symptoms which pointed somewhat significantly to the seat of the supra-renal capsules; whilst the bloodless and waxy appearance of certain chlorotic females bore so close a resemblance to the anæmia described, that it was difficult not to suspect the existence of something common to both.

Medical Gazette, March 23, 1849, *p.* 518.

13.—*On the Relation between Anœmia and Goitre.*—By Dr James Begbie.—Dr. James Begbie, of Edinburgh, has communicated a very valuable memoir, with the above title, to the *Edinburgh Monthly Journal* for February, 1849, p. 495. The author proposes to answer the question,—"*Are Anœmia and Goitre related?*" by a review of cases which have come under his own observation: but he introduces them by some general statements, strongly tending to confirm the idea that the two affections are related. He states, for example, that in countries where bronchocele prevails in an endemic form, the exsanguined countenances, protuberant eye-balls, and other signs of bloodlessness manifested by those affected with the bronchocele, render it probable that both are effects of the same

cause—anæmia. Bronchocele, we are also told, develops itself rapidly during confinement in childbed, and undergoes a temporary augmentation during the flow of the menses. Dr. Parry has often seen goitre follow functional disorders of the heart, — disorders known to depend very frequently on deficient sanguification. It is a form of the *hydropthalmia* of systematic writers—perhaps that form of dropsy denominated *buphthalmus*, or *ox-eye*, which accompanied the enlarged thyroid gland as a concomitant symptom of anæmia, in the cases related by Dr. Begbie. He found this enlargement of the globe of the eye, the result of congestion and effusion, intimately connected with that condition of the system in which the blood is deficient in fibrin and colouring matter; and yielding to a plan of treatment adapted to such a state.

[This treatment consisted in the use of carbonate of iron with aloetic purgatives, and soothing doses of hyosciamus; with seaside residence, full diet of animal food, and exercise in the open air.]

With regard to the treatment of anæmia and its secondary disorders, Dr. Begbie makes the following remarks:—"Our first object, in the treatment of anæmia and its secondary disorders, is to ascertain the exciting cause, and having arrested or removed this, to improve the condition of the blood by the free use of the preparations of iron, and a liberal allowance of animal food, unless there are complications of such a kind as to contra-indicate their use. Wine is seldom necessary, and generally hurtful; but porter or ale may be taken with advantage. A change of air, travelling and passive exercise, also do good. Persistence, however, is absolutely necessary both on the part of the patient and his attendant. *Iron*, the chief means of cure, in order to be effectual, must be continued for months, and perhaps, after an interval, again and again, renewed. It will not, however, disappoint our expectations; for whether it act by invigorating and improving the digestive and assimilative functions, or by restoring and augmenting the red particles of impoverished blood, there is really no remedy in the hands of the physician, whose virtues have been so thoroughly tested, and so deservedly recommended to our confidence and trust."

London Journal of Medicine, March, 1849, *p.* 273.

DISEASES OF THE NERVOUS SYSTEM.

14.—ON THE PATHOLOGY AND TREATMENT OF CONVULSIVE DISEASES.

By Dr. R. B. Todd, F.R.S., &c.

It will be necessary for me to state *in limine*, that under the general term *Convulsion* I include all those irregular actions of sets of muscles which are wholly unrestrainable by the influence of the will, and which are excited and kept up by a physical irritant.

Under this definition of the word convulsion I would refer to three distinct kinds of convulsions, each of which denotes a different cause, and is produced by an affection of the nervous system distinct in kind as well as in position. These are, the jactitating, or chorea-like, or choreic; tonic, or tetanic; clonic, or epileptiform.

[After a general description of these three kinds of convulsive movements, Dr. Todd proceeds to the subject of chorea. He observes:]

Of all the movements which accompany chorea, that of the tongue is the most peculiar and characteristic; indeed I would call it pathognomonic. The patient protrudes the tongue with a peculiar thrust to the fullest extent of which it will admit; frequently this is done by one effort, at other times it requires two or three attempts before it can be accomplished. And the subsequent retraction is also peculiar: the tongue is drawn back, supported and guided by the pressure of the teeth, and often very slowly and with great caution. Sometimes this peculiar mode of protrusion of the tongue is the precursor of the other choreic symptoms; and if we had frequent opportunities of seeing the cases very early, I have no doubt that this symptom would be found more frequently the harbinger of the more extensive affection. I have from this symptom only, been able to predict with accuracy that an attack of chorea was coming on.

[Paralysis frequently succeeds to the choreic convulsion. It sometimes precedes it, but it is then accompanied, Dr. Todd says, by the peculiar and pathognomonic thrust of the tongue. Dr. T. observes:]

That paralysis may occur in this way is evidently a fact of the highest practical interest, whilst it is not devoid of importance as bearing upon the pathology of the disease. Nevertheless I do not find it noticed in any of the descriptions of the disease in the practical works which I have consulted. The previous history of the case, the absence of any other symptom referable to the head, and the gradual mode of invasion of the paralysis, in addition to the peculiar mode of protrusion of the tongue, will always enable the careful practitioner to distinguish this paralysis from that caused by cerebral lesion.

The heart is very frequently morbidly affected in chorea; and this morbid affection shows itself, not in any disturbance of *the rhythm* of the heart, which, so far as my observation extends, never is disturbed, but in a derangement of its sounds. A bellows sound is frequently present, and is either aortic systolic, when it is almost always an accompaniment of the anæmic state of the patient, but *much more frequently* it is *mitral systolic* or *regurgitant.*

I am surprised that this feature of the clinical history of chorea has not attracted more general attention. It has been well known to me for many years, and I described it in the Croonian lectures on the pathology of rheumatism, which were given by me six years

ago. But to my friend Dr. Addison, of Guy's Hospital, is due, so far as I know, the merit of having first made public the frequent occurrence of this bellows sound in chorea.

What is the cause of this sound? is it due to any irregularity in the muscular action of the heart? a choreic state of that, as of the external muscles, whereby the action of the valves is disturbed? or is it caused by a morbid deposit on the mitral valves, which prevents their precise action; or can it, like the aortic sound, depend on the anæmic state of the patient?

I shall answer the last question first. The closure of the mitral valves is the result of the mechanical accumulation of fluid in the ventricle, which presses the valves towards the auricle, their tension being maintained by the chordæ tendineæ: this effect will be produced no matter what may be the nature of the compressing fluid; a mere colourless state of the blood cannot produce mitral regurgitant bellows sound; some imperfection, either of the valves themselves, or of their mode of apposition, must exist in order to produce such a phenomenon.

It is plain, then, that the bellows sound must be caused by some disturbance in the action of the mitral valves. What, then, produces the valvular derangement? Can it be any disturbance of the muscular action of the heart, any choreic state of the musculi papillares? I apprehend not; for as the closure of the valves is not accomplished by the action of the muscles, it would not be affected by any such irregular muscular action. Moreover, no such choreic state of the heart's action could take place without its being indicated by a disturbance of the heart's rhythm, which, of course, would be very readily detected.

Hence, then, we cannot resist the conclusion, that the mitral bellows sound in these cases is due to such an organic lesion as prevents the complete closure of the mitral valves during the systolic effort of the heart.

But now we are met with another question not less important. What can have created this morbid state of the mitral valves? It is rare to meet any symptom of heart affection, either preceding or accompanying the chorea; and the valvular imperfection is often overlooked, and only discovered by careful auscultation of the heart's sounds.

The true answer to this question is, I believe, to be found in the fact that many of the patients who suffer from chorea are of a rheumatic diathesis, and that in consequence of this rheumatic state they experience an insidious endocarditis which generally affects the mitral valves.

[Turning now to the second class of convulsive diseases, Dr. Todd makes a few remarks on tetanus. The points to which he refers are the little variation of the symptoms, the want of post-mortem appearances, and the curious fact of the endemic appearance of the disease. Respecting the cause of death in tetanus, Dr. T. observes:]

The tendency in tetanus is to death by exhaustion and asphyxia. The frequent return of the attacks of spasm, affecting all the muscles of the trunk, have a most exhausting influence upon the patient; and as the respiratory muscles, and even the muscles of the larynx, are generally more or less involved, the respiratory function becomes seriously impeded. Hence, the most fatal sign is a rapid recurrence of the convulsive attacks, and the most auspicious sign is the prolongation of the intervals between them. Practically the disease should be regarded as one of extremely fatal tendency, and therefore requiring the diligent interference of art to counteract its debilitating influence.

[Dr. Todd classes laryngismus stridulus with the tetanic diseases. He says:]

The features of this disease to which I beg your particular attention are these—

1. That the laryngeal spasms are truly tetanic, and occur in paroxysms: differing, however, from the ordinary tetanus in this, that a more complete relaxation of the muscles takes place in the intervals between the paroxysms, and that a considerable period often elapses before a recurrence of the paroxysm takes place.

2. As in tetanus the paroxysm is brought on by the sudden application of external stimuli, as by a sudden draught of cold air, a start, by sudden mental emotion, by the attempt to swallow, so the same causes tend to produce the paroxysm in the laryngismus.

3. Tetanus sometimes does not extend beyond the muscles of the jaw and throat: this is more frequently the case with laryngismus, but very frequently in the latter disease the tetanic convulsion extends to other muscles: the muscles of the extremities become engaged, and the so-called *carpopedal* spasm is induced; the limbs being stiffened, the wrists flexed, the thumbs turned in, and firmly bent into the palm of the hand, and at the same time a similar condition of the ankle and foot, and an inversion and flexion of the great toe. With these there is generally well-marked opisthotonos, sometimes not extending beyond the cervical and dorsal regions, sometimes affecting the whole spine. During the paroxysm the child's consciousness is unaffected, and after its cessation the child returns to its previous state, appearing no otherwise changed than being more or less exhausted by the greater or less violence of the paroxysm.

4. Laryngismus does not manifest itself in robust and healthy children, but in children often weakly, but always in a state of depraved nutrition, from irregular and imperfect feeding, bad air, and frequently from the irritation of teething. A strong, healthy, well-fed child never exhibits laryngismus. Frequently the similarity of nervous constitution, as well as the mode of dieting of children in the same family, favours the development of the malady in successive brothers and sisters about the same period of infancy; and hence we often hear of instances of several members of the same family having been carried off in infancy by this malady.

5. There can be no doubt that under the continued operation of the exciting causes of the disease, laryngismus tends to a fatal result. It exhibits no spontaneous tendency to recover. Death takes place in some cases apparently from rapid asphyxia, much in the way it sometimes does in the cases of rapid development of œdema glottidis, or from the attempt to respire carbonic acid gas; generally the infant dies from exhaustion, brought on by the frequency of the paroxysms, and augmented by the injury to the respiratory function which each paroxysm causes. In such cases the mode of death is exactly as in tetanus. But in a third class the long continuance of the impaired nutrition generates a morbid state of brain, epileptiform convulsions are superadded to the tetanic convulsion, and dropsy of the ventricles takes place, favoured by the retardation to the venous circulation which these frequent attacks occasion, and, also, sometimes, by the deposit of tubercular matter in the course of the venæ magnæ Galeni, which return the blood from the ventricles and the choroid plexus: and thus the patient dies with all the phenomena of hydrocephalus.

[Dr. Todd next speaks of epilepsy; and classes with it the convulsions of children, convulsions induced by the retention of urea in the blood, and puerperal convulsions. The latter are truly epileptic, but the convulsions of children have sometimes more or less of a tetanic character. Infantile convulsions are often caused by the presence of a morbid poison in the blood; and such cases as these form a connecting link with the convulsions of renal disease. Upon this subject, Dr. Todd observes:]

So excitable is the nervous system of children, that the development of a fever, especially if caused by the introduction of a poison, is very apt to be ushered in by convulsions, which sometimes prove fatal, and certainly will be more likely to prove fatal if the treatment be conducted with the idea of suppressing the present evil, neglecting to look to what the child has to undergo after the convulsions have ceased. All practical men are familiar with convulsions in connexion with the early development of small-pox, measles, and especially of scarlet fever.

An artificial epilepsy may be produced by the administration of of certain poisons; as the œnanthe crocata, conium, and prussic acid. In poisoning by this latter substance, the epileptic convulsions are frequently complicated to a very great extent with those of the tetanic kind.

These facts prepare us for the doctrine that the retention of certain important excretions in the blood, which their proper organs are incapable of eliminating, favours the development of a state exactly resembling epilepsy in the phenomena of the convulsive fits. When the liver or kidney are in such a state that the elements of the bile, or those of the urine, are not separated in their normal quantity, the patient is very apt to have several convulsive fits, which often terminate his existence. Renal disease is a much more fruitful source of convulsions than hepatic, and the form of disease

in which they are most apt to occur is in that small contracted kidney, which by some is regarded as a stage of Bright's disease, but, which, in reality, is a special morbid state of kidney, a chronic nephritis, frequently produced by gout, and therefore forming the finale of many a gouty patient's career, but often resulting from other causes. In this state of kidney, the gland has shrunk chiefly at the expense of the cortical substance; the growth of epithelium (the immediate agent in the separation of organic products) is greatly impaired, many of the renal tubes are stripped of it, and no development of epithelium at all takes place in them. Hence, while in many of these cases water is freely eliminated, and even a diuresis takes place of an urine pale, and of low specific gravity, the organic products, urea and uric acid, accumulate in the blood, and act, especially the former, as a poison to the nervous system. Any state of kidney, however, if it be unfavourable to due elimination, may give rise to these symptoms; and accordingly I have seen them in that acute affection of the kidneys which is associated with inflammatory dropsy, and with dropsy after scarlet fever, to which my friend, Dr. Geo. Johnson, has given the appropriate name, *Desquamative nephritis;* and and also in fatty disease of the kidney, where the accumulation of fat has taken place to such a degree as greatly to congest the Malpighian bodies, and to interfere seriously with elimination.

Medical Gazette, April 20, 1849, *p.* 661.

15.—ON THE PATHOLOGY OF CONVULSIONS IN CHILDREN.

[A writer in the British and Foreign Medico-Chirurgical Review, lays down the following propositions respecting the convulsions of children. He says:]

1. The first proposition we may lay down is that of Flourens, Magendie, and Hall, that no disease of the mere cerebrum, or disorder limited in its effects to that organ, or to the purely cerebral nerves, can induce convulsion; for no irritation confined to these parts can bring about muscular contraction. If disease or disorder, or so-called irritation, commence in these parts, it must afterwards be propagated to, or its results there must affect, the membranes, or the incident or motor nerves, or the medulla oblongata, before convulsions can arise.

2. Convulsions, either partial or general, may occur, and during the fit the child may die: yet after death no *visible* alterations, or organic lesions, or anatomical changes, can be discovered in the nervous centres, with which such convulsions can be rightly and satisfactorily associated as an effect; nor has the child been known to have laboured under any affection of other systems or organs, by which the centres may have been more immediately or secondarily affected, or with which they may have *sympathised;* nor have the incident or excitor nerves been known to have been exposed to such

irritation, as might have produced the convulsions in the way of reflex actions. It is here then supposed that certain alterations, of a dynamic character, in the nervous matter of the centres, primarily arising there, are the cause of such convulsions, which are therefore of *centric* origin, a cause which is certainly not anatomically definable, but only assumable in its existence.

3. Convulsions, either general or partial, may occur, and the child may die in the fit; but after death no morbid lesional changes are found to exist in the nervous centres, to which we can ascribe the disorder as an effect. We refuse to acknowledge that the cause of the convulsions had its origin in the nervous matter of the centres, or primitively affected it, because we know the child to have been exposed to irritants of the incident or excitor nerves; and we believe that these convulsions were caused by reflex spinal actions, and that the latter were the result of the irritation so produced. We believe, moreover, that the child laboured under no affection of any organ which could alter the proper relations of the vascular system of the brain with the nervous matter, or at least produce such an alteration which proves itself by an abiding and evident change to be witnessed after death. These convulsions are of *excentric* origin; and the only cause of them, down to which we can generalize, is the peculiar irritation to which we believe certain incident or excitor nerves have been subjected.

4. A child dies after having been convulsed. After death, more or less evident and important lesional changes and anatomical alterations are found in or about the nervous centres. These we believe sufficient to account for such convulsions, and we trace them to such morbid changes, &c., as their effect. We also affirm them to be caused by disease of the centres, because before their appearance there existed a greater or less amount of so-called "cerebral symptoms." We believe these cerebral symptoms, and consequently the disease of the centres, to have been of a *primary* character, that is to say, to have had their commencement either in the nervous or vascular apparatus contained in the cranium or spinal canal, and not to have followed as a secondary disorder upon a more or less acute affection of any other or more distant organ. These convulsions are of *centric* origin.

5. A child dies in convulsions. After death we may, or we may not, perceive such material changes in the centres as we may affirm to have been their immediate cause. If they exist, so far it is satisfactory; if not, we yet believe that *temporary* alterations were produced, either in the relations of the vascular system of the brain, &c., to its nervous matter, or else in the *sympathetic* relationships between the centres and other systems, organs, or structures of the body, by the previous existence of important disease in organs, &c., other than these centres. This we believe, because we know the child to have exhibited, for a greater or shorter space of time, other than "cerebral symptoms;" to have distinctly betrayed the existence of more or less acute disorder of distant parts. We therefore believe that such convulsions, or the disorder in the

centres, were not of *primary* character, not the result of disease having its primal origin in the centres themselves; but that they were of *secondary* character, a well-marked and evident disorder of a distant part having at length drawn the brain—not at first disposed in itself to enter—into the general whirlpool of mischief. Such convulsions are yet of *centric* origin.

We believe that the above arrangement can be made to include all forms of convulsions, spoken of by writers as occurring in children. But we must admit that it is very doubtful how far we may be permitted, as knowledge advances, to preserve all its various divisions. For example, it may be asked if we are *now* justified in making such a class of convulsive actions as we should include in the characters of proposition 2,—a class having only *assumable* endowments. Are we warranted in believing that, in infants and young children, such purely and essentially *neurose* disorder can arise, or that the nervous matter of the centres can assume in itself any such diseased condition?—a condition independent of alterations or changes in its vascular system. It has been affirmed by some later continental writers that, before the period of the first dentition, *essential* convulsions, such primitive neurose disorder as we have admitted, are things next to an impossibility; and Mauthner asserts that, even later in life, it forms the exception to a great rule, when we are called upon to believe in their existence. According to Verson, "before an organ or system—causes of disease being present—can exhibit the development of a pure and special form of malady, proper to and proceeding from itself, it must be endowed with all those qualities which make it capable of the conflict; it must possess a completely developed organization, and through the latter be in a condition to react against those influences which are affecting it; do we find this to be the case with the *sensitive* sphere of life in the infant? By no means. In it predominates the *vegetative*, and that portion of the nervous system alone which is necessary for the carrying on of its functions. The ganglionic system is, therefore, developed relatively to such necessities.

The comparatively more perfect development of the spinal cord in children, with which the ganglionic system is in such intimate connexion, in relation to that of the brain, is one of the main reasons advanced by some later writers to account, partly at least, for the very great frequency of convulsions during infantile life. Dr. West remarks:

"The grand reason of their frequency is no doubt to be found in *the predominance of the spinal over the cerebral system in early life.* In the adult, the controlling power of the brain checks the display of those reflex movements, which become at once evident if disease heighten the excitability of the spinal cord, or cut off the influence of the brain from the paralysed limb, or if even sleep suspend that influence for a season."

British and Foreign Medico-Chirurgical Review, April, 1849, *p.* 416.

16.—ON PAROXYSMAL NERVOUS DISEASES.

By Dr M. Hall, F.R.S., &c.

[In a former paper, Dr. Hall treated of what he calls *Trachelismus* and *Phlebismus.* In proceeding with his subject, he says:]

I will observe, in the first place, that the termination in *-itis* is become generic, and denotes the fact of the inflammatory character of disease. I think a similar use may be made of the termination in *-ismus*, which may be applied to another class of diseases, not inflammatory. We have, in this sense, strabismus, laryngismus, pharyngismus, cheirismus, podismus, &c.

The term *trachelismus* may be used to express that paroxysmal affection of the neck, in which, the muscles acting inordinately, the neck is affected with opisthotonos, or becomes twisted, or otherwise contorted; whilst the subjacent veins are subjected to compression, and the blood flowing along them is arrested or impeded in its course—a condition which may be aptly termed *phlebismus.* The term phlebismus may be regarded as generic, and each kind of this affection may have its appropriate and specific designation; and whilst the term *sphagiasmus* denotes compression of the internal jugular vein, that of *rhachiasmus* may be used to denote that scarcely less important event of interrupted circulation in the rachidian or vertebral vein. The former will be henceforth associated with paroxysmal apoplexy, paralysis, mania, &c.; the latter with the epileptic seizure, and other convulsive and spasmodic affections, the cerebrum and the medulla oblongata being affected respectively.

Trachelismus and phlebismus constitute one of the most important events in *pathology*, and especially in the pathology of the nervous system. Induced by mental emotion and excitants of reflex action, they are, in their turn, the fruitful source of *congestion* in the *cerebrum*, or in the *medulla oblongata*, and of *cerebral* and *spinal paroxysmal diseases.*

There is no *order*, no *degree*, in which the muscles of the neck may not act, and in which the veins of the neck may not be compressed; there is no form of cerebral and spinal paroxysmal derangement—from a momentary oblivium or delirium to coma or mania—from the slightest spasmodic or paralytic affection to epilepsy or hemiplegia—which may not take place as consequences of that compression. Having the limits of these maladies clearly placed before our eyes, we may readily imagine or comprehend the intermediate forms, mild, and dire, and we are prepared for their immediate observation.

[Dr. Hall thinks these views confirmed by the phenomena of strangulation, in which we observe first apoplexy, then epilepsy, and then asphyxia. He then proceeds to say:]

In my former paper I observed, it may be laid down as a principle, that there is no muscle—no set of muscles—in the neck, which

may not become spasmodically contracted, singly, or conjointly with others; and that there is no vein in this region which may not, under the influence of such contraction of muscles, become compressed, and the course of whose blood may not consequently become impeded. As a further consequence, there is no organ which delivers up its blood to such vein, which may not be the seat of congestion, and, if I may so express myself, of the apoplectic state. As a still further consequence, I may now add, that there is no paroxysmal affection of the nervous system, and especially of its *cerebral* and its *spinal* portions, however severe, however apparently slight, which may not result from this series of causes and effects.

This statement may be expanded into the different modes and forms of diseases of the nervous system, in their cerebral and spinal portions. Hence we have stupor, oblivium, cerebral epilepsy, vertigo, headach, delirium, flashes of light, muscæ, flocci, dimness, amaurosis in every degree, tinnitus, and other noises, dulness, deafness; neuralgia and other morbid sensations; paralytic affections; hence we have epilepsy, and every kind, mode, and degree of spasmodic and convulsive affection.

So far the efforts of *trachelismus* are *paroxysmal;* they supervene on emotion or harass of mind, and on excited reflex action, and recede completely. But there is a limit to this complete recession. At length the recession is incomplete. The effects of the congestive state of the veins are more or less permanent, in the form, generally, of slight paralysis. What is the precise condition of the intermediate blood-channels? and of the minute arterial branches and venous roots? Do they yield and dilate, as we sometimes see minute ecchymoses on the face? Is there lesion of their intimate tissue? Is there effusion? Is there ramollissement of the adjacent cerebral or spinal tissue?

In a word, it has been admitted, from time immemorial, that mental agitation and passion, and deranged condition of the stomach, liver, bowels, &c., induce apoplectic attacks. I only attempt, for the first time, I believe, to set forth the *rationale* of this pathological phenomenon.

In doing this I establish a *Class of paroxysmal* diseases of the nervous system, cerebral as well as spinal; apoplectic and paralytic as well as epileptic and convulsive. I endeavour to fix the attention of physicians, and of patients too, on this, the *curable* stage of these dire maladies, before, from being merely paroxysmal derangement, they pass into permanent lesion of tissue.

This is *living* pathology as contrasted with the results of morbid actions as usually detailed in books, which are *dead.* If we read over the titles of each of the nine *Letters* of M. Lallemand, we find but a list of the capita mortua of the real and living disease. But what actions led to each of these? This is *the* one question, with those of the diagnosis and of the treatment, which interests the physician and the patient.

Inflammation and its causes; venous congestion and its causes; certain conditions of the vascular system or its contents—as anæ-

mia, plethora, the effects of alcohol; the tuberculous diathesis, diabetes, albuminuria, a syphilitic taint, &c.; the seat of the disease in the membranes, in the substance of the cerebrum and spinal marrow; the character of the disease, especially as to its acute or chronic form, &c. I mention these circumstances to show how extensive a question that of the diagnosis is.

To return to the subject of trachelismus and of phlebismus, and of the paroxysmal affections of the nervous system, their effects, I must repeat that they exist in *two* stages; the first, that in which none but a functional change has taken place; the second, that in which physical lesion has supervened. The former case is the truly paroxysmal. These two conditions are coincident and commensurate with each other. As lesion supervenes, the symptomatic phenomena become more or less persistent; and here again the phenomena are proportionate to each other. In the severest form of this affection, physical lesion, perhaps rupture, may occur at once. It may be apoplexy or hemiplegia.

It would be interesting to institute a comparative estimate of the importance of inflammation and of the congestive state to which I have adverted, in regard to the nervous system. I believe the latter to be the most frequent cause of disease of the *substance* of the nervous centres, and its effects to be frequently mistaken for those of inflammation, which is the most frequent, but not the sole cause of affection of the *membranes*, chiefly arachnitis. This statement must be left to future observation for development. The idea is big with conclusions of the deepest interest.

The specific effects of impeded venous circulation, whenever this occurs in external parts, are sure to be *two;*—first, dilatation, or the *varicose* state; and secondly, *effusion of serum.* We may suppose, until further investigation has confirmed or corrected this view, that similar events occur in the nervous centres, leading to irritation or lesion of their structure. Rupture, or softening of their substance, may follow if the proper remedies be neglected.

I now proceed to discuss briefly the subject of the treatment.

The causes—all mental emotion, agitation, passion, must be most carefully avoided; all sources of gastric and intestinal irritation must be removed.

I believe the most specific preventive to be systematic walking exercise, and especially a pedestrian tour.

I am convinced that I have seen the best effects from a light mercurial conjoined with ipecacuan and squill, and an aperient, taken so as gently to affect the mouth and act on *all* the secretions and excretions, the mercurial cachexia being prevented by air and exercise.

The head should be kept cool by a lotion, consisting of one part of alcohol and three of water, the feet guardedly warm and dry.

Sinapisms should be applied to the nape of the neck, extending to behind the ears. Dry cupping, and cupping with simple or crossed incisions, and with the detraction of the appropriate quantity of blood, have proved most useful.

But this is rather the treatment of the permanent effects of congestion. The most important treatment consists in avoiding the exciting causes of trachelismus, and its effects. It is obvious that, if we would save the brain, and save the intellect and limbs, we must deplete the veins.

We may now resume our subject, and observe that what shame does to the face, neck, and breast, through the contraction of the platysma myoides on the external jugular, other agitations and passions, and excitants of reflex action, effect on the cerebrum or medulla oblongata, or both, by the compression or obstruction of the internal jugular or vertebral. The former is *seen*, the other is *deduced* from the symptoms, consisting of paroxysmal, cerebral, or spinal seizures. If repeated, the cerebral or spinal veins, or the intermediate blood channels between these and the arteries, become dilated or varicose, or yield an effusion or serum, whence persistent forms of the same diseases. Of these effects, the first should be subdued, the second should be averted, by timeous, that is, prompt, and effectual *cupping*.

Lancet, March 17, 1849, *p.* 285.

17.—ON THE IRRITABILITY OF THE MUSCULAR FIBRE IN PARALYTIC LIMBS.

By Dr. Marshall Hall, F.R.S., &c.

[At page 34 of our seventeenth volume, the reader will find an abstract of a paper by Dr. Marshall Hall, on the irritability of the muscular fibre in paralysed limbs. We beg now to subjoin some extracts from the paper published in the last volume of the Medico-Chirurgical Transactions. It will be remembered that Dr. Todd had arrived at conclusions on the subject of the irritability of paralysed muscles, quite at variance with those of Dr. Hall. The latter explains this circumstance by the fact that the machines used were of different kinds. Dr. Todd used the electro-dynamic, or magneto-electric apparatus; while Dr. Hall employed the common Cruikshank's battery. It might be supposed *á priori* that the results afforded by these instruments would be different, and Dr. Hall has shown by experiment, that they are in fact diametrically opposite.]

In effect, as my friend Mr. Henry Smith, to whom I am indebted for his most able assistance in all these experiments, early and acutely observed, the galvanic trough is, from its simplicity of operation and its low intensity, really a *test of the irritability* of the muscular *fibre*; whilst the electro-dynamic apparatus, from its extreme intensity and mode of action, displays the *power* of the muscular *mass*.

It may also be surmised, that whilst the simple current of low intensity acts principally on the superficial fibres, the rapidly re-

peated galvanic agency, in its intense form, may penetrate to the deeper-seated *nerve*, and so display a degree of energy not observed in the other case.

That Mr. Smith's view of this question is the correct one, is proved by an experiment which I have repeatedly made.

If the hands of a healthy person be subjected to the action of the electro-dynamic apparatus, they are energetically *closed*: the flexor muscles being more massive and powerful than the extensors, the former are more forcibly contracted than the latter; it is their *power* not their *irritability* which is tested.

But it is to an actual case in point that we must appeal; and I beg here to introduce an experiment, made to determine the question before us, viz. that of the results obtained by the two kinds of apparatus to which I have adverted. I give it in the words of Mr. Smith. It was made on the 10th of November, 1847.

"In a case of hemiplegia of three years and a quarter's duration, in a man aged 28, the arm being slightly wasted and the hand contracted, the leg only a little enfeebled, we first applied the current from the common Cruikshank's battery, the hands being placed in salt water in one basin, the feet in another: on using a small number of plates, the muscles of the paralysed arm were found to be slightly affected by the current which did not influence those of the unaffected arm; on augmenting the number of plates, both arms were moved, but the paralytic arm more than the other.

"We now substituted Hearder's electro-dynamic apparatus for the Cruikshank's battery: both arms were moved, but the unaffected more than the paralytic arm, the muscles being more powerfully contracted, as observed both by the sight and touch; a difference which became still more obvious as the power of the apparatus was augmented."

Having thus pointed out the source of the discrepancy between the results obtained by Dr. Todd and myself, I need not proceed any further. Still there are so many and such important questions involved in this inquiry, that I am anxious to be allowed to adduce fresh evidence of the statements made in my former paper. Most of all, I would call the attention of the Society to the great physiological principles involved in this inquiry—viz. that, whilst volition is an exhauster of the irritability of the muscular fibre, this irritability is essentially dependent on the influence of the spinal marrow; and to the important application of galvanism as a test of that irritability, and as a diagnostic between the cases of paralysis, in which, first, the influence of the cerebrum, or, secondly, the influence of the spinal marrow, is severally removed; for both these doctrines remain in their full force.

The Terms Employed.—Before I proceed, I must also take this opportunity of defining the medical terms employed by me in this discussion.

In the first place, by *cerebral* paralysis, I mean any disease which *severs* the influence of the cerebrum, and consequently the acts of volition, from the paralysed limbs.

In the second place, by the expression *spinal* paralysis, I mean

any disease which *severs* the influence of the spinal marrow from those limbs.

In my former memoir, I speak expressly of "the cases of paralysis arising from the severed influence of the spinal marrow, as distinguished from those arising from the severed influence of the cerebrum merely."

Cerebral paralysis usually depends on disease of the cerebrum, but spinal paralysis may depend on disease situated in any locality, even in the cerebrum, *so as to sever* the influence of the spinal marrow from the paralysed muscles.

By the term paralysis, too, I mean *pure* paralysis, and I carefully distinguish such paralysis from cases in which *spasm*, "excited immediately from some disease affecting the spinal marrow" (or system) "itself," is superadded; cases which I have recently distinguished by the term *spasmo-paralysis*.

It is especially necessary to distinguish between such cases, as from involving "some disease affecting the spinal marrow itself," are attended by *early* spasmodic affection, and those cases of pure cerebral paralysis, in which spasm supervenes at a remote period, from the physiological action of the spinal marrow on muscles from which the influence of volition being withdrawn, the irritability of their fibre is augmented and their permanent contraction induced, presenting the only case, probably, in which such contraction is physiological, or pathological only in a secondary point of view.

It is true that Dr. Todd has referred the early and the tardy contractions in hemiplegia or cerebral paralysis to the operation of other causes, but it is equally certain that Dr. Todd's views are erroneous; for both experiment and observation prove that no condition of the cerebrum, *limited* in its influence to the cerebrum, *can* induce spasmodic action.

An equal, or, rather, a double error is committed by Dr. Todd in reference to the action of strychnine. It has been amply proved that strychnine acts on the spinal marrow, and only on the spinal marrow.

Throughout this inquiry it is essential, not only that our instruments should be identical, but that our terms should bear a meaning at once specific and accurate.

The question submitted to fresh Experiment.—The questions now are:—

1st. Are there cases of paralysis in which the irritability of the muscular fibre is greater in the paralytic than in the unaffected part of the limb?

2nd. Are there cases of paralysis in which the reverse of this obtains?

3rd. What are these cases severally and respectively? Are the former, cases in which the influence of cerebrum *alone* is severed? and are the latter, cases in which the influence of the spinal marrow *also* is intercepted?

4th. Is the galvanic battery or trough of Cruikshank, cautiously employed, a fair test of the irritability of the muscular fibre in

paralytic limbs? and consequently, diagnostic of these two kinds of paralysis?

In the prosecution of these questions many precautions are required.

In the first place, it will always be observed that the patient is timid on the first application of the galvanism. The effect of surprise and of sudden sensation, in wincing, starting, &c., must be carefully distinguished from that of the galvanic influence on the muscular fibre.

2. The degree of the galvanic force should never be, because it never need be, such as to give "pain," far less such as to "jerk the limb out of the basin." Such violence must complicate the phenomena and confuse the results. The galvanic force should be the *mildest* which can produce an obvious effect.

3. The first effect of a paralytic seizure is one of shock, probably of diminished irritability of the muscular fibre. *Time* must be allowed for the restoration, as well as for the augmentation, of this property. It is, therefore, only after a certain lapse of time, that it is proper, or perhaps *safe*, to apply galvanism, especially if the patient be timid.

4. Within a very few days of the paralytic seizure, there is frequently a rapid and considerable recovery of voluntary motion; afterwards the recovery is both much slower and much less marked. The former is the recovery from *shock*, the latter diminution of the actual disease.

5. Lastly, in some cases there is *no* recovery. In these cases I think it probable that there may be no augmentation, perhaps no restoration, of the irritability of the muscular fibre. In one such case, after the lapse of seven weeks, the muscles of the paralytic arm remained less suceptible to the proper galvanic influence than the unaffected limb.

[Dr. Hall then relates several cases in which the galvanic current was used in diagnosis, by testing the irritability of paralysed muscles. In the first case, what had been supposed to be paralysis of the facial nerve, was shown to be cerebral paralysis, for the muscles of the paralysed side were more affected by the galvanic current than those of the sound side. In a case of real facial paralysis, the muscles of the unparalysed side were most affected. In another very interesting case of paralysis of one leg, the affection was supposed to be partial paraplegia, and therefore spinal; but on applying the galvanic current from Cruikshank's battery, the muscles of the paralytic limb contracted when no motion was observable in those of the sound limb. The paralysis was thus shown to be cerebral; and by close investigation of the case it was found that the patient had felt tingling of the hand on the same side as the paralysed leg. It is worthy of remark, that on using Hearder's electro-dynamic apparatus, the effects were reversed; the unaffected limb was jerked violently, when the paralytic limb was scarcely moved.]

Medico-Chirurgical Transactions, 1848, *p.* 149.

18.—*Observations on Paralysis.*—By Dr. M. Hall, F.R.S., &c.—[In a discussion upon a case of Dr. H. Davies's, read before the Medical and Chirurgical Society. Dr. Hall made the following remarks. He said:]

Paralysis had been for ages aptly distinguished from hemiplegia and paraplegia, the former being, generally, not always, *cerebral* in its origin, the latter *spinal*. But besides hemiplegia and paraplegia, there are cases of partial paralysis, arising from affection of the nerve of the part itself—an affection most frequently seen in the face; so that we have cerebral, spinal, and what might be termed neural paralysis. But all cases of *partial* paralysis are not affections of this nerve merely; for we may have partial hemiplegia, hemiplegia *limited* to the eyelid, to the face, to the arm, to the leg, &c. We may also, he believed, have partial paraplegia, or paraplegia limited to an arm or leg; though of this he was not so certain. This remark led him to the case before the Society—a case of paralysis of the two arms, and, as he understood, of the two arms only, the legs being unaffected. What could its nature have been? It is almost impossible to imagine disease of the spinal marrow so situated as to induce paraplegia of both superior extremities, without involving in its effects the parts situated below. Paralysis of one arm, like paralysis of one leg, might arise from disease of the vertebra, so situated as to involve the immediately adjacent portion of the spinal marrow, or the origin, roots, or trunk of the brachial nerve. But how such disease could affect both brachial nerves, without involving the intervening substance of the spinal marrow, and so inducing paraplegia of the inferior extremities, it is difficult to imagine. He concluded, therefore, that Dr. Davies's case could not arise from disease of the vertebra, or it could not be one of half-paraplegia, using this term in its ordinary acceptation. What, then, was its intimate nature? There are two cases, one of which the given case may have been: the first is effusion at the base of the brain, slowly encroaching on the spinal canal, and compressing the roots of each brachial plexus. But this case is slow in its accession, and the case before us was more or less sudden. The second is of a totally different character. Sudden attacks of paralysis, of an arm, of a leg, or of both arm and leg of the same side, in children, are not very uncommon. They are generally preceded or accompanied by spasmodic or convulsive affection. He though they were to be traced to dental, gastric, or intestinal irritation, acting, in a reflex manner, on the muscular system, and especially on the muscles of the neck, whence the veins of this region became compressed, and the nervous centres congested with blood, and there were coma and general convulsion. If such a state of things may occasionally leave one arm paralyzed, it seems not difficult to imagine that in rare cases both arms may suffer the same loss of power.

Lancet, April, 7, 1849, *p.* 375.

19.—*Addendum to Dr. Marshall Hall's Papers.*—The two principal causes of affection of the *circulation* in the encephalon and in the cerebachidion, if I may use that term, are—1, *Inflammation*, and 2, *Congestion*.

Everything leads to the conclusion, that inflammation consists in interrupted flow of blood in the blood-channels situated intermediately between the minute branches of the arteries and the minute roots of the veins, and its effects. Congestion consists in the interrupted flow of blood along the veins. The former probably depends on an altered physical condition of the internal surface of the blood-channels; the latter on compression of the venous trunks. There may be a point in which these two effects unite, in the latter case, when congestion may actually pass into inflammation. A diagram would best illustrate these two conditions.

The causes of inflammation act either immediately on the blood-channels, or through the medium of the *ganglionic system;* the causes of congestion, chiefly emotion and excitants of reflex action, act through the medium of the *spinal system.*

I have thus treated of the *theory* of these affections; I now add a most important remark, bearing upon *practice.*

It sometimes occurs that in the first instance, or in the midst of an apparent amendment, in diseases of the nervous system, a sudden retrograde change is experienced, for which no cause can be assigned.

I have reason to believe that in such cases some paroxysmal affection has occurred in the night, or in the day, unobserved.

This fact, if established by careful observation, will raise the veil from many a mysterious event, and probably lighten the blame which the ignorant are so ready to throw upon the physician, who, forsooth, in such cases of difficulty and danger, is rendered responsible for every untoward event, when he has, in reality, no more power to control them than the astronomer has to control the course of the stars.

A passing emotion may induce trachelismus; this, in its turn, phlebismus; and this, the condition of the nervous centres, which, remaining after the attack itself is over, is the cause—perhaps the hidden cause—of the origin, relapse, or augmented malady of the patient.

If this conjecture be just, how careful ought our researches and inquiries to be pursued on such occasions! The pillow, the tongue, the shirt, and the sheet, should be carefully examined; and suffusion of the eye, and pallor, flushing, or lividity of the countenance, should not be overlooked. Frequently, the only evidence of an epileptic seizure having occurred during the night, is a wounded tongue, or aching limbs.

But the seizure may be so slight as only to leave some such cerebral symptom as confusion of intellect, or forgetfulness, or augmented excitability—events, the occurrence of which, however, it serves to explain.

These hidden seizures, occurring in the night, or in the absence

of witnesses, as they are the cause of many cerebral and spinal symptoms, enable us to explain many occurrences which would remain enigmatical and mysterious. I cannot recommend the subject too earnestly for new investigation. Severe attacks, whether apoplectic or epileptic, unfortunately present no difficulty in the diagnosis.

Lancet, April 14, 1849, *p.* 394.

20.—ON CEREBRAL AFFECTIONS SIMULATING IMPENDING APOPLEXY.

By Dr. H. M. Hughes.

[After mentioning the hydrocephaloid disease of children, Dr. Hughes refers to a similar affection in adults. He says:]

Every practical surgeon of large observation, and every practical accoucheur of extensive experience, is well aware that giddiness, headache, dimness of vision, singing in the ears, throbbing of the temples, restlessness, sopor, and even a disposition, or approach to coma, are symptoms which occasionally follow extensive hæmorrhage as well as accompany plethora, or "determination of blood to the head."

We are reminded by Dr. George Burrows, that even Hippocrates observed that repletion and depletion of the vascular system were accompanied with similar symptoms of disturbance to the nervous centres. I shall quote a few well-authenticated instances, illustrative of this fact, many of which are mentioned by Dr. Marshall Hall, in his essay on Bloodletting, and taken from authors of high repute. "A lady," who had been cupped twice or thrice a week regularly, by a friend of Dr. Hall's, "was affected with extreme pain of the head, violent throbbing of the temples, slight delirium, and sickness, and the street was found covered with straw." These symptoms increased so much during the day, together with "feverishness and a frequent strong pulse, that it was apprehended inflammation had taken place in the brain. The arm was actually tied up for bloodletting, but the remonstrances of the patient, the history of the attack, and the recollection of some remarks on the loss of blood, read some years before, happily led to the abandonment of this measure." "Fortunately both for the patient and myself," says the relator of the case, "her repugnance to bleeding prevented me from using the lancet, and so saved her life. She earnestly requested to be allowed a little brandy; I gave it her: it obviously afforded much relief, and I began clearly to see the nature of the case." The lady recovered under "light cordials, mild diet, rest, quiet, and attention to the bowels."

Dr. Cooke, in his notes to Morgagni, gives instances of similar symptoms following extensive hæmorrhages, but refers them, as I believe incorrectly, to cerebral plethora.

"A lady, aged 25," says Dr. Abercrombie, "had been frequently bled on account of symptoms in the head which had supervened upon an injury. Considerable relief had followed each bleeding, but the symptoms had soon returned, so as to lead to a repetition of the bleeding, at short intervals, for several months." When Dr. Abercrombie saw her, "she had a death-like paleness, and her pulse was very rapid, and as small as a thread;" but still she complained of frequent headache, violent throbbing in the head, confusion, and giddiness. "It was agreed, as a last experiment, to make a trial of an opposite system—nourishing diet, and tonics. In a fortnight she was restored to very tolerable health." The same author reports the case of a lady, who, after leeching, and other depletory treatment employed with benefit for a painful abdominal hardness following delivery, was, after three weeks, when reduced in strength, alarmed and agitated, and began to talk wildly and incoherently, and, "after a restless night, was in a state of high excitement, talking incessantly, screaming and struggling, with a wild expression of countenance, and a small, rapid pulse." Leeches, cold applications, and purgatives, were employed, with little or no benefit. A full glass of white wine was afterwards given every hour, and after the fourth hour she was found composed and rational, her pulse 90, and of good strength, and from this time there was no return of the symptoms." He also observes, "that in the last stages of exhausting diseases, patients frequently fall into a state resembling coma; and I have frequently seen children lie for a day or two in this kind of stupor, and recover under the use of wine and nourishment. It is scarcely to be distinguished from the coma which accompanies diseases of the brain. It attacks them after some continuance of exhausting diseases, such as tedious and neglected diarrhœa." "I have seen in adults the same affection, though it is perhaps more uncommon than in children. A man, considerably advanced in life, in consequence of a neglected diarrhœa, fell into a state closely resembling coma." An elderly lady, from the same cause, had loss of memory, and squinting. "Both these cases recovered by wine and opiates: in the former, blistering on the neck was also employed." He adds the very remarkable case of a gentleman, about thirty years of age, who had been reduced to a state of extreme weakness and emaciation. As debility advanced he had become considerably deaf; and "when I saw him," says the Doctor, "he was affected in the following manner:—He was very deaf while sitting erect, or standing, but when he lay horizontally he heard perfectly. If, when standing, he stooped forward, so as to produce flushing of the face, his hearing was perfect; and, upon raising himself again to an erect posture, he continued to hear distinctly so long as the flushing continued: as this went off, the deafness returned." Dr. Marshall Hall states that "he is persuaded that loss of blood is by far the most frequent and influential source of delirium and mania occurring in the puerperal state." It is strange that, with such facts before him, so accurate and close an observer as Dr. Abercrombie should not be led to doubt the truth-

fulness of the doctrines deduced from the experiments of Dr. Kellie, which experiments, imperfect and inconclusive as Dr. G. Burrows has shown them really to have been, appear entirely to have warped his judgment in reference to the cerebral circulation. Richter and Mr. Travers relate cases of amaurosis resulting from loss of blood; and the latter author says, "A country lad, of robust constitution, became the alternately favoured paramour of two females, his fellow-servants, under the same roof. He was the subject of gutta serena in less than a twelvemonth." He refers to another lad, who had palsy of the retina as a consequence of secret indulgence. "When bleeding," says Sir Benjamin Brodie, "has been carried to a great extent, symptoms frequently occur, which in reality arise from loss of blood, but which a superficial observer will be led to attribute to the injury itself (concussion of the brain), and concerning which, indeed, it is sometimes difficult even for the most experienced surgeon to pronounce, in the first instance, to which of the two causes they are to be referred." Many quotations bearing upon the same point might be added; but it may be presumed that sufficient, and perhaps more than sufficient evidence has been adduced from authors of high repute, to show that a great variety of symptoms which are commonly, and, under certain circumstances, correctly considered to be indicative of the consequences of inflammation of the brain, or of oppressed cerebral circulation from repletion or pressure, may, and not unfrequently do accompany conditions of the brain which are the direct reverse of these,—such as loss of blood, or anæmia and debility, from whatever cause arising. It is not within the scope of the present communication, which is of a purely practical character, to attempt to explain the proximate cause of this similarity of symptoms existing under circumstances diverse and even opposite. It is sufficient for me, I think, to have pointed out the circumstance, and to have advanced evidence from esteemed authors of the fact, for the purpose of an introduction to the observations which follow.

Many writers, and among others Drs. Copland, Holland, Watson, George Burrows, and Copeman, have recently insisted upon the injurious, and even fatal consequences which may result from venesection in some forms of apoplexy; and have pointed out the obvious differences which exist in the symptoms, attendant circumstances, and pathology of that complaint, and the caution which should be exercised in its treatment. The validity of these opinions is now generally acknowledged. The indiscriminate use of the lancet—"that invariable refuge of the timid and the ignorant"—in all cases of apoplexy, would, it may be presumed, be advocated by few practitioners of experience. Notwithstanding this, the only notices with which I am acquainted, which appear to myself to have reference to the peculiar, but by no means uncommon affection to which I am anxious to direct the attention of the Society, are from the pens of Drs. Abercrombie, Holland, and Marshall Hall.

Dr. Abercrombie, at page 310 of his very valuable work, says, "I have repeatedly been consulted under the following circum-

stances:—A gentleman accustomed to very full living is seized with an apoplectic attack, or with symptoms indicating the most urgent danger of apoplexy: he is saved by bleeding, and other free evacuations, and is kept for some time on a very spare diet. His complaints are relieved, and as long as he keeps quietly at home he goes on without any uneasy feeling; but when he begins to go abroad, he becomes liable to attacks of confusion and giddiness, generally accompanied with palpitation of the heart, and an uneasy feeling about the præcordia. His pulse is now soft and rather weak, and his general appearance indicates the very reverse of plethora; and these symptoms are removed by a cautious improvement of his regimen. This curious fact I have repeatedly had occasion to attend to in the treatment of cases of this kind, and it has always appeared to me to be one of very great interest in reference to the pathology of the brain."

The slight sketch here given must, I think, be familiar to every observant physician of extended experience, as the subjects of it must be very frequently submitted to their notice.

I might quote largely from Dr. Holland's paper on "Bleeding in Affections of the Brain," but I content myself with the following sentences:—"Little heed is taken of the many cases where the symptoms depend upon irritation alone, or on loss of nervous power, or on deficient circulation in the brain, or on altered qualities of the blood, or, it may be, on morbid changes in the nervous substance itself. Theory might suggest that in some of these various cases the loss of blood would lead to mischief. Experience undoubtedly proves it." "It is certain, indeed, that there is a state of brain best, perhaps, represented to us in its general effect of diminished nervous power, which tends to produce sometimes spasmodic seizures, sometimes delirious or maniacal affections, sometimes palsy of different parts of the body: these effects being in no wise obviated by depletion, but rather increased by all such means; while they are relieved by remedies which tend to excite the energy of the sensorium, and to augment the general power." "I have known many instances where bleeding has been repeated to remove the very symptoms which, it was next to certain, it had been the means of bringing on."

Dr. Marshall Hall writes, in page 31 of "Disorders of the Nervous System," "too great action of the minute arteries, congestion in the veins, an anæmious state of the vascular system of the encephalon, alike induce morbidly exalted and impaired conditions of the mental and cerebral functions." The same author, in a paper "On the prevention and treatment of Apoplexy and Paralysis," published in the 1st volume (new series) of the "Transactions of the Medical Society of London," writes, page 188, "I have repeatedly been consulted by patients with a pallid and anæmious countenance who have been in a state of constant alarm by continual use of blood-letting, or application of leeches, whom an opposite course—especially a mild chalybeate—adopted and pursued with due caution and prudence, has rescued from this state of alarm, and

of danger, too (for there is, as I have said, danger even of apoplexy and paralysis in a state of inanition), in a moderate time." Again, page 194, he says, "I repeat that it is not plethora alone which predisposes to the apoplectic and hemiplegic attack; and that the opposite condition of the system, whether it arises from the loss of blood by blood-letting, or hæmorrhage, or from defective sanguification, is not free from danger."

[Dr. Hughes gives the following as the considerations by which this affection may be diagnosed:]

1. The history of the case, and the particular circumstances under which the symptoms have arisen. 2. The general appearance of the individual. I think I have observed that the parties suffering from this affection are ordinarily either thin, pale, and delicate, as well as weak; or that, though short and stout, they are pale, flabby, and anæmiated. This, however, is far from being without exception, as I have seen persons suffering from it, who presented in many respects the very appearance which is popularly believed to be that peculiar to apoplectic subjects—viz. a short thick-set person, a short bull neck, and a red face. 3. The pulse is either small, frequent, and feeble, and is sometimes accompanied with the peculiar thrill of hemorrhage and chlorosis; or, though large and apparently full, is very soft and compressible. Unless the affection is accompanied with diseased heart or arteries, it is never full and at the same time hard and incompressible. The extremities are usually cold, sometimes numb, and not unfrequently purplish from a languid circulation; at other times they are soft, moist, and flabby. The tongue may be loaded, but it is more frequently moderately clean, and more frequently still is morbidly clean, pale, expanded, and indented. 4. The symptoms generally affect the patient while walking, or while in the erect or sitting posture; are not increased, but on the contrary relieved by lying down; and are often, in fact generally, most troublesome upon first rising in a morning. Ordinarily, though not universally, they are not increased by stooping. 5. No heaviness, and no increase of symptoms, is experienced after a full meal. The individual is usually well while in bed. 6. Depletory measures previously employed, though they may have apparently relieved the patient for the time, have been uniformly followed, *in a short period (in a day or two at most)*, by a recurrence and even an increase of the symptoms, and have usually been adopted without relief. 7. The patient has never found himself worse after a glass of wine or other stimulant, excepting perhaps from its immediate and purely stimulant effects; but on the contrary has usually been relieved, if indeed he has ever ventured upon the experiment of taking it, or been allowed by his medical attendant to take it. 8. In some cases, but in some cases only, an anæmic murmur may be heard over the aortic, or rather (as I believe) over the pulmonary valves, and a continuous "humming," or "bruit de diable" (evidently producing *light* pressure of the stethoscope) over the *veins* of the neck. Whenever these symptoms are observed, when, that is to say, they

truly exist, they constitute important aids to diagnosis, and equally important indications for the treatment necessary for the safety of the patient. It is of importance to recollect that, before deciding upon a plan of treatment, the heart, as well as the pulse should be always examined; and that the force of the two should be compared; otherwise serious mistakes may arise, and injurious consequences may result; as the heart may be beating with unusual force, while the pulse is feeble, or the strength of both heart and pulse may be diminished, though serious organic disease may exist in the former; and the brain may be seriously, gravely, and even dangerously oppressed with blood, though the impulse of the central organ of the circulation may be diminished.

[The treatment will consist in the removal of the cause, when practicable; the administration of tonics, especially chalybeates, and moderate purgatives to secure gentle and regular action of the bowels; good diet, fresh air, and moderate exercise. In very advanced cases direct stimulants will be needed. In cases which are of a doubtful nature, we should blister the nape, and purge, while we allow a generous diet; until we are able to ascertain the exact character of the affection.]

Medical Gazette, April 20, 1849, *p.* 671.

21.—ON A NEW REMEDY FOR EPILEPSY.

By Thos. Salter, Esq, F.L.S., Poole.

[This remedy is the expressed juice of the cotyledon umbillicus, The following is the case by which its virtues were tested:]

Miss G., the lady whose case is here referred to, is now 28 years of age. She was attacked with epilepsy, when on a visit to a relative in town, about fourteen years since. Her parents were both healthy persons, and it is not known that any member of either family suffered from the disease. She is of middle stature, fair complexion, somewhat stoutly made, and previous to her illness was of a lively and cheerful disposition, and in the uniform enjoyment of good health.

The relative with whom she was staying, being an eminent metropolitan surgeon, she had every advantage that medical skill and experience could afford her. Then, and subsequently, physicians of the highest character have been consulted on her case, and various modes of treatment have at different times been put in force, but all alike failing to produce any good result. The paroxysms continued to return at intervals, varying but little, from a month to six weeks, (but they occasionally occurred at the intervals of a week or fortnight) for a period of twelve years. At the end of this time she was strongly urged to try as a remedy the cotyledon umbillicus, by a person who stated that it had proved a cure in several similar instances of disease. Accordingly, two teaspoonfuls of the expressed juice were taken two or three times in the day, and this

treatment has been persevered in up to the present time, during those seasons of the year in which the plant could be procured, from early in the spring till late in the autumn. From the time the patient commenced the use of this remedy she has had no return of the disease, (though up to that time it had continued with undiminished violence), not a single paroxysm having since taken place; and with the loss of the fits, every vestige of disease, both physical and moral, has disappeared. If this remarkable effect can fairly be ascribed to the means employed, it would be impossible to find stronger testimony for the use of any medicine whatever. There are no reasons for supposing that the happy change in the patient's circumstances was brought about by any other agency; her habits and mode of living were previously fixed, and no change was made in them at this time; they were always remarkably regular and uniform, and have gone on to the present moment without any interruption or variety. No medicine of any sort has been taken since the juice of the cotyledon was first resorted to. To suppose that the termination of the disease on taking the cotyledon was a mere coincidence, is a supposition beyond the ordinary course of probabilities, more especially as this was just one of those cases not likely to cease spontaneously, or to be cured by the unassisted operations of nature. It had existed twelve years, and might, therefore, be thought to have established itself by habit; but there were strong grounds for believing that it had gone further than this, for it had produced some of those effects which we are wont to consider as the offspring of organic change. Her complexion, from having been fair and ruddy, had become sallow and opaque; she had also lost much flesh; the memory had become very defective, and she often expressed herself with incoherence: the temper, also, from having been remarkably amiable, was irresistible and uncertain.

The cotyledon umbillicus is stated by Withering to be a rare plant: its common habitation would appear to be that of old walls and rocks, but it grows abundantly in this neighbourhood on dry sandy banks. For the information of those unacquainted with the plant, I would add that in the Linnæan arrangement it belongs to the class decandria, and order Pentagynia. but in the natural classification it will be found under the order crassulaceæ. It is about six inches high: the leaves are succulent, fleshy, and peltate*: it flowers in June and July, in a long spike of blossoms, accumulated on one perpendicular flower stalk; the corolla is bell shaped, and of a pale yellow colour; the stem or flower stalk is somewhat purplish, with a few small leaves at its lower part. At the time of flowering the leaves become thin and shrivelled, from yielding their juice to the stem and flowers.

* In collecting the leaves of the cotyledon umbillicus care should be taken not to confound it with an umbelliferous plant, the marsh pennywort *(hydrocotyle vulgaris)* which it somewhat resembles: I have known the mistake occur more than once. A view of the entire plant, and a knowledge of the locality in which it grows—the cotyledon always being found in very dry, and the hydrocotyle in moist places—will be conclusive.

The plant may be used as long as the leaves remain green and succulent, and every part of it be employed for the expression of the juice, with which the leaves, however, are the most abundantly supplied.

The cotyledon is closely allied to the sempervivum and sedums, which also belong to the order crassulaceæ, and though now forgotten or obsolete as medicines, all three had at one period some reputation both as internal and external remedies.

[Four years after the above remarks were written, Miss G. is stated to have had no return of her complaint. Several other cases of cure have also come to the knowledge of Mr. Salter. The lady who recommended the remedy to Miss G., became acquainted with it by reading an article, said to have been written by the Rev. John Wesley, in an old number of the Arminian Magazine.]

Medical Gazette, March 2, 1849, p. 367.

22.—ON PARAPLEGIA.

By Dr. W. W. Gull.

In paraplegia arising from lesion of the cord, whether the anterior or posterior columns, or the cord generally, be affected, there is greater loss of motion than sensation.

Very numerous cases are on record of pressure on the cord, from tumors, hydatids, &c., in all of which loss of motion accompanied loss of sensation, when this latter formed part of the symptoms; but I cannot find any cases of pressure or disorganization uncomplicated, in which the loss of sensation preponderated, or in which there was simple loss of sensation.

My attention has now for years been much given to *post-mortem* appearances; but I have not met with cases which controvert my position, nor are there amongst the numerous cases of lesion of the cord which are contained in the records of this Hospital, any which show that one part or column of the cord, when affected, is attended with anæsthesia without loss of motion, though the reverse often happens.

If it is admitted that these facts warrant the conclusion that seems to me fairly to flow from them, we have therein another argument in favour of the zonal symmetry I advocate. If we admit that this spinal system, in its various segments, can act under the form of an excito-motor system, which necessitates continuity of action from incident to reflecto-motor nerve, we cannot, I think, even suppose in these segments two centres; one, namely, for receiving the impression from without, and the other for exciting the movement in the muscles. Nor does there seem to me any stronger grounds for admitting separate centres for motion and sensation in the brain than in the cord. How fallacious soever these remarks may be, yet the facts seem to oppose the assumption that there are such sensory and motor centres, distinct from each other.

In pursuance of my subject, I have next to call attention to these

cases of paraplegia in which there is much greater loss of sensation than of motion; and, far from finding them contradictory of the former, or anomalous, they seem naturally to arrange themselves into distinct classes. Before treating of the two great divisions of such cases, I would observe, that in paraplegia from disease about the spine, the nerves, as they pass to the cord, are sometimes implicated, and we find, on a *post-mortem* examination, sufficient explanation of what, carelessly observed, might seem to be an exception to the rule laid down. Thus, in the case of the Count de Lordat, mentioned by Abercrombie, a paralytic affection of the left arm followed an injury to the neck from a fall, and the opposite arm became numb. On a *post-mortem* examination, together with induration of the cord, there was a *compact and tendinous condition of the cervical nerves, owing to thickening of the membranes covering them.*

In some cases of disorganization of the spinal centres, numbness or other affection of the sensation may precede or accompany the disorganising process, and yet, even as the paralysis increases, the state of the sensation shall improve, and become quite normal. It would seem, from the similarity of such cases to the results of concussion of the spine, in which the sensibility returns after a few days, as if the onset of the local disorder produced the condition of concussion, destroying for a time the power of feeling, which, so soon as the first shock of the inflammation is over, returns again. This is strikingly exemplified in those gradually extending affections of the cord in which anæsthesia is the precursor of paralysis, and then disappears.

The first class of paraplegic affections, with preponderating anæsthesia, are peripheral, beginning as impressions on the extremities of the sensitive nerves; the muscular movements suffering subsequently. The efforts of modern physiology have been directed to the elucidating and setting forth the functional value of each particular part of our bodies; and its success has nowhere been greater than in regard to the nervous system. We no longer regard nerve as a mere conductor of an influence received from the spinal cord; it is in itself as active, according to its particular function, as the centre to which it is attached, or the muscle with which it is connected. The prevailing views in physics will find their way into every branch of natural study; hence we talked for a time of the nervous fluid, and there were theories to show that the nervous fluid was probably a highly subtil one, allied to the electrical. But electrical fluids expressed no more than an hypothesis; and we now regard the conducting wire as so conducting by virtue of its active molecular forces. We alter its physical state, and we alter its power of conduction, and this reacts through the series. This great advance in physics has gone hand in hand with the discoveries in neurophysiology. Nerve has the power of exciting muscle by virtue of its proper state of nutrition; this is proved by exhausting a nerve; after leaving it at rest for a time, it recovers itself, although previously divided from its centre.

Medical Times, March, 24, 1849, *p.* 407.

23.—AN ANOMALOUS CASE OF SPINAL AFFECTION.

By Dr. Golding Bird, F.R.S., &c.

[The following case occurred to Dr. Bird some years ago, and the account of it was read before the Physical Society of Guy's Hospital. The patient was a married lady forty-three years of age, who was in excellent health, and had never been subject to nervous or hysterical ailments. She was in affluent circumstances, and was free from any anxiety; her disposition was amiable, and her moral courage great. This lady received a bite from a gnat, as she supposed, a few inches above the right ankle; and this was followed in a day or two by great pain and swelling of the right leg and thigh, which bore the appearance of phlegmasia dolens. Under proper treatment this state slowly subsided, leaving behind it intense pain, apparently neuralgic, which was most severe in the tract of the sciatic and anterior crural nerves. In a few days the left leg became affected in the same manner as the right had been; and the same neuralgic pains remained on the recession of this second attack. When the extreme tenderness in the course of the nervous trunks had slowly subsided, which was about five weeks after the supposed gnat bite, another train of symptoms came on; and one week after this, viz. on the 19th of September, 1844, Dr. Bird was sent for. He tells us:]

I found her lying on her back in bed, with a remarkably cheerful expression of countenance, and slightly flushed face and hot skin,—both which appeared to be owing to a medical examination at midnight, rather than to disease, as they were replaced by a cool skin and rather pallid cheek, before I left her chamber. She spoke cheerfully, and generally with a smile, as was customary with her. Pulse 88,—generally, however, being but 70; tongue clean and moist. Seeing her thus cheerful, I took her hand; and in an instant a marvellous change came over her,—the hand was convulsively contracted, the arm jerked up with almost tetanic violence, the face assumed a hippocratic expression of anguish, and she uttered a scream of pain. Proceeding with my examination, I found that when lying calmly she was free from all pain; but the slightest touch of the limbs produced these tetanic convulsions, accompanied by intense pain in the spine. It was remarkable that *a gentle touch or fillip with the finger, produced these attacks with the greatest intensity, —a carefully applied and firm grasp causing but little uneasiness.* The sensibility of the arm to touch, was, however, far less than that of the feet. Here the touch of a feather was sufficient to produce convulsions more intense than I have ever witnessed, save in tetanus or hydrophobia; the legs and thighs becoming of an iron-like hardness, from the violent spastic contractions of the muscles, and the pain in the lumbar region of the spine being most distressing. Slighter spasms were excited in the muscles of the chest or abdomen, by a sudden touch or pressure of the integuments of these regions, provided it were applied below the mammæ; above this part, as

well as on the face and neck, I was by no means satisfied that any morbid excitability existed. It was remarkable that when the arms were thrown into the state of spasm she always referred the pain to the upper dorsal region; and when the legs were convulsed, she complained alone of the sacro-lumbar spinal region. Ordinary sensation and motion appeared perfect, at least, so far as she could judge; for she dreaded all attempts at motion when in bed, as the mere friction of the moving limbs against the bed clothes was sufficient to excite all the distressing symptoms I have endeavoured to depict. In the free air, and unsupported, she certainly could move her arms, and when supported by two other persons, she could readily move her legs. Her strength was nearly gone; she felt excessively weak, and could scarcely, by being half carried, totter to her sofa; and at each pressure of the feet against the floor, spasms came on.

On examining the spine, (which was well formed), by pressure, as well as by the application of a hot sponge, I found but little pain experienced in the cervical region; the dorsal was tender, and any blow there gave her a painful thrill, with the excitation of slight spasms in the upper extremities. The pain increased in proportion as the pressure was applied lower, until the last two lumbar vertebræ were reached, where a sharp blow produced insufferable pain, and a rigidity of the legs approaching opisthotonos; the sacrum, however, could be struck, and the coccyx bent up, without pain. There was neither involuntary action, nor paralysis of the bladder or rectum; appetite excellent; bowels open daily. Urine at night, clear, neutral, sp. gr. 1020; in morning, deposited urate of ammonia, acid, sp. gr. 1028; at noon, pale like water, acid, sp. gr. 1008. All the specimens were free from albumen, and did not become alkaline in twelve hours.

I confess I found myself in no small difficulty in coming to a determination on the nature of this very curious case. I had before me a lady, naturally anything but irritable, or of nervous or hysteric temperament, who a few weeks before was in good health. She suffers, as she believes, from the bite of an insignificant insect, and within twenty-four hours absorbent inflammation commences in the bitten limb; this runs through a severe but not protracted course, nearly identical with that of phlegmasia dolens in a puerperal woman; the tension subsides, but pain in the tract of the nervous trunks remains. After a short pause, a less intense but similar state appears in the unbitten limb; the phlegmasia subsides, but neuralgia is left. The vascular action in both limbs having disappeared, the neuralgic pains appear to mutually advance and meet: and are found in greater intensity at the sacro-lumbar articulation. A temporary and delusive improvement in general health occurs, only to be succeeded by an exalted irritability of the whole extent of the spinal cord, from the cervical region downwards, the *reflex function becoming intensely marked, quite independent of any loss of the influence of volition over the limbs, and a physiological condition*

being presented, resembling more closely that observed in a decapitated snake than any other. The brain was unaffected; memory, reasoning, the senses, all perfect; motion and sensation universally unaffected. In a word, but one conclusion could be drawn; viz., that my patient was suffering from a highly irritable state of the true spinal axis, whatever else she may have been labouring under. All acute action was gone; the calm face, the clear tongue, the quiet pulse the correct condition of the functions, all indicated the absence of any of those morbid changes included in the phenomena of inflammation, and connected probably more particularly with want of integrity in the vegetative or organic nervous system. Then the perfect consciousness, sensibility, and volition, demonstrated the integrity of the brain; the want of peripheral pains, the absence of morbid changes in the urine, and absolute freedom from all paralysis, shewed, at least, that there could be no important organic lesion of the spine. One series of functions of this important element of the nervous system seemed nearly alone involved, viz.. those which are comprehended under the term of *reflex*, and to which the attention of physiologists has been directed by the laborious and philosophical researches of Dr. Marshall Hall. Yet my experience failed in bringing to my recollection another similar case. I could only look to tetanus and hydrophobia on the one hand, and to chorea on the other, for any justification of the opinion I arrived at, and yet I need not say how infinitely distant were such analogies. I, however, ventured to give the following opinion: that the gnat-bite having inoculated the patient with a morbid poison, absorbent inflammation occurred as from a dissecting wound, which ran its course, involving probably in the cotemporaneous inflammation the femoral nerves; and, on the subsidence of acute action, left the patient, (as is not uncommon after ordinary phlegmasia dolens), the subject of intense neuralgic pain in the affected limb. After the recession of absorbent inflammation in the other leg, the irritable state of the nerves was propagated to the spinal cord, perhaps by extension of a very low form of inflammation, and the result was the production of an exalted irritability of the spinal marrow, analogous to that produced by the inoculation of strychnia.

I am quite prepared to hear this opinion found fault with, for at least it was but begging the question. I have candidly given it in the words in which I expressed it at the time to Dr. Baker and Mr. Thorpe. I suggested the following mode of treatment.

1. Keeping up the general health, and backing up the constitution against the local disease, by bland nutritious diet.

2. Endeavouring to reduce spinal irritability by rubbing unguentum veratriæ (veratriæ, gr. viij, adipis ʒ vj), along the spine twice a day.

3. Endeavouring to restore the reflex influence more to the dominion of the will, by nervine tonics, and gently stimulating the capillary circulation generally, by the mildest alteratives. As she had taken mercurials before I saw her, I suggested sulphate of zinc, in doses of gr. i, three times a day (the dose being increased

every third day), with gr. iij of iodide of potassium. I need hardly say I suggested the sulphate of zinc from its remarkable influence in chorea and allied affections.

A month passed over before I heard of her progress. The excited state of the spine had, I learnt, rather increased for a week after my visit, and then became stationary. As she did not improve, the family became anxious; farther consultation was desired, and I was again summoned on October 21st, not quite five weeks after my first visit. I found the patient as cheerful and happy as before, perhaps rather improved in health. I fancied that the spasmodic shocks—for such alone was the term I could apply to them—were less intense. I could, however, arrive at no other opinion than I had previously, and I begged a continuance of the treatment. She had borne the sulphate of zinc well, up to ℈j thrice a day. I replaced it by valerianate of zinc for a change, and substituted ung. aconitinæ (aconitinæ gr. i, adipis ʒ i) for ung. veratriæ. I heard of her afterwards several times by letter; and, at my wish, as she was left anæmiated, iron, in the form of ammonio-citrate, was given for a few weeks, and the nervous energy of the weakened limbs restored by carefully and gently applied electro-dynamic currents. I did not see this lady again until the 21st October, 1845, exactly a twelvemonth after my last visit: being called to a patient in a neighbouring village, I went on to her residence to see her. I was much gratified at seeing her in her drawing-room, sitting in an easy chair, from which she rose, with but a slight effort, to welcome me. Her history, from the time of my seeing her a twelvemonth before, may be told in a few words. The state in which I left her had gradually subsided, under the use of the remedies; the pain in the legs continuing after the cessation of spasms. At the end of the month the latter ceased, having been gradually and insidiously replaced by partial paralysis of motion, a condition from which she had very slowly emerged under the influence of the electricity; and when I saw her she was absolutely well, with the exception of some rigidity in the limbs, rendering assistance necessary in walking. She has managed to get to church, up a tolerably steep hill, without support.

As I stated at the outset, I do not purpose making any remarks on this case. I was to me a novel one. I have but once since seen one at all approaching to it; and it is for the members of this Society to discuss its nature. I frankly state, that my mind is by no means better made up as to the pathology of the case, than at the term of my first visit. As to my diagnosis, I give it to the Society, as I gave it to the lady's medical attendants; it led me to reason out a mode of treatment, under which, (and, I hope, to a certain extent, by the aid of which) she has been nearly restored to health. Perhaps I may be allowed to submit for discussion the following points, having, in the course of the narrative of the case, expressed my own opinion with regard to some of them,

1. Had the gnat-bites, and the consequent absorption of a septic poison, anything to do with the origin of the affection?

2. Was the supposed phlegmasia dolens really phlebitis, or inflamed absorbents? or, was the inflammation really limited to the tract of the nerves of the limbs?

3. How came the unbitten leg to be involved?

4. Was the affection of the spinal cord confined to its theca, and secondarily only affecting the portion presiding over reflex phenomena? or, was the condition simply one of irritation?

5. Was the subsequent paralysis of motion a result of the same state of the spine which co-existed with the excited state of the reflex functions? or, was it a mere consequence of exhausted energy, such as is observed in the leg of a frog, after over-stimulating it by a galvanic current?

London Journal of Medicine, Jan. 1849, *p. 55.*

24.—ON CHOREA.

By Dr. R. B. Todd, F R.S., &c.

[At page 31 of this volume, we give some very interesting remarks by Dr. Todd on "convulsive diseases." In his second Lumleian Lecture, we have some further general remarks on these affections, and then our attention is more especially directed to "Chorea." Dr. Todd says:]

In the present state of science, we cannot fix on any cause not resident in the nervous system, which would excite extensively active movements of the muscular system *before* the nervous system,—such, for instance, as would occur in an epileptic convulsion. The only way in which such excitation of the muscular system could be produced, would be through the blood. Now a stimulus operating through the blood directly upon the muscles would be very unlikely to produce active contractions alternating with relaxations, such as occur in epileptic convulsions; on the contrary, it would give rise to permanent or tetanic contractions. The cramps with which the muscles of a limb are affected just prior to gout fixing itself in the joints, might be taken as an example of such a contraction induced in muscle by a morbid excitant conveyed to it by the blood; but even these, although often severe and extremely painful, are very partial. Yet I confess that this explanation of a phenomenon so simple as that of cramp is rather far fetched; and this becomes at once apparent, when we reflect that a stimulus operating upon a nerve is a much more effective excitant than one operating directly upon a muscle. Take, for example, the best stimulus of muscular contraction, the galvanic force,—the contractions excited by passing a galvanic current through the twentieth part of an inch of the main nerve of a limb are much more powerful than those developed by the direct application of the galvanic power to the muscles themselves.

The argument, then, may be thus briefly stated:—We know by experiment that a cause operating upon a very small portion of the

nervous system, may produce considerable muscular disturbance, not of one, but of several muscles; but that the same cause, acting on the muscular system directly, is much less effective, nor does such a stimulus excite *several* muscles by acting only upon one.

Is it not, then, going too far for the explanation of such a phenomenon as *muscular cramp*, to pass by the nerve, and to limit the influence of the cause to the muscle itself?

Is not this argument alone sufficient to direct us to search first in the nervous system for the immediate exciting cause of the muscular convulsions? Nor is there any reason why both systems should not be influenced by the same excitant, which, even though it were more especially accumulated upon the muscular system, would, in all probability, act primarily and most effectively on the nerves, and *through them* on the muscles, which from their already excited state, would respond the more readily to this stimulus.

This is, probably, the case in poisoning by strychnine, one of those energetic substances which, if introduced into the blood in only a very minute quantity, seems to multiply itself; thus to become diffused with extraordinary rapidity through the blood, affecting the two great tissues which are mainly concerned in the manifestation of the vital forces—muscle and nerve, — but evincing a greater affinity for the latter than the former, and therefore acting with greatest energy upon it.

In the choreic affections it may well be inquired, first, whether the parts affected primarily are the nervous or the muscular system.

To this I answer at once, undoubtedly the nervous system; but I hope to show that in all these cases the muscular system participates in a depraved nutrition, which renders it more prone to sympathise with the irregular motions of the nervous system.

That the nervous system is primarily affected in chorea, appears to me clearly established, 1st, by the fact that the most common exciting cause of chorea is *fright*, or strong mental emotion. Thus in one of my cases, the patient, a girl of nineteen years of age, was rudely accosted and laid hold of in the street by a person under the garb of a gentleman, and she became greatly alarmed, and escaped to the house of a relation. Next morning the symptoms of chorea showed themselves. Fright would act upon the nerves,—not upon the muscles. Grief also will induce chorea. A little girl in King's College Hospital, a veritable "Tilly Slowboy," experienced great grief at the loss of a child to whose care she was devoted. A few days afterwards chorea showed itself.

These mental causes do not act primarily upon the muscles, but upon the nervous centres and the nerves; and so frequently do mental causes give rise to chorea, that Rufz, in investigating eighteen cases, traced the origin of eleven of them to fright.

In chorea, the nervous system is obviously peculiarly excitable. Chorea patients are much more agitated in the presence of [illegible] than they are themselves. Of this we have abundant [illegible] in hospital practice. When the physician [illegible]

proaches the bed of a patient with chorea, accompanied by a crowd of students, the movements become greatly augmented, and continue so until the cause of excitement has been removed.

This view obtains further confirmation from the fact that we can explain the various phenomena of chorea much more distinctly by referring them to a primary morbid disturbance of the nervous system.

Admitting, then, that there is good ground for the belief that the nervous system is primarily affected in chorea, what portion of that system can we assign as the more special seat of the disturbed action? Is it in the spinal cord or in the brain?—in that part in which the nerves are implanted, or in that which does not receive nerves?

All evidence tends to show that the part of the nervous system more especially affected in chorea is the *brain*. The hemiplegic character of partial chorea denotes that the disease is of cerebral origin; that the morbid process is most active somewhere above the decussation of the anterior pyramids. Were the spinal cord the seat of disease, you would find commonly that the disorder of movement affected both sides of the body.

Again, its frequent origin from a mental cause points to the brain as its seat. It seems in the highest degree probable that emotions of the mind affect that part of the brain which is most nearly connected with the points of implantation of the auditory and optic nerves—the channels through which emotional excitement is so frequently produced. This part was long ago pointed out by our celebrated Willis as being the corpora quadrigemina, and the large mass of nervous matter which constitutes the greatest part of the mesocephale, a centre which forms the common bond of union between the hemispheres of the brain above, the medulla oblongata below, and the cerebellum behind.

An affection of this part of the brain may, from its extensive connections, produce all the phenomena of chorea, either partial or general: partial, if the morbid action be on one side, as is often the case in cerebral affections, when the muscular disturbance will be on the opposite side; general, when the affection is on both sides; and in the cases of extensive and acute chorea, the parts involved would not be limited to the centre of emotion, but would extend to the cerebellum, giving rise to the disturbance of the locomotive and co-ordinating powers; and, on the other hand, it would involve the corpora striata and optic thalami, and through them the hemispheres, impairing voluntary power and sensibility, and contributing to that imbecility which frequently accompanies chorea of long duration.

The readiness with which sleep controls the choreic convulsions may be adduced as a further indication that this disease has its seat in the brain: sound sleep is undoubtedly a peculiar affection of the brain,—a state in which the particles of that organ seem to assume a condition of quiescence, which contrasts remarkably with that unceasing, ever active change, of which it, more than any other

part of the body, is the seat. This state, whatever it be, is incompatible with that which gives rise to the choreic convulsions; and hence the moment that sleep steals over the patient, and overwhelms his senses, the movements of the limbs, however active, cease, but return immediately the state of sleep has withdrawn.

I would remark here that this fact of the influence of sleep in controlling the movements of chorea, tells strongly not only against the view which localizes the morbid process of chorea in the spinal cord, but also against the doctrine which affirms the existence of a certain antagonism between the spinal cord and the brain. Were the spinal cord the seat of chorea, and did such an antagonism as I have referred to exist, the state of sleep would be the signal for the immediate development of increased and more active movements, and waking would rather tend to control these movements by the renewal of the activity of the brain.

And now we may inquire, what is the nature of the morbid process upon which the development of chorea depends?

With reference to this inquiry, we have the negative evidence of morbid anatomy that the morbid process in the brain is not such as to produce lesions recognisable by our means of observation; and we have the positive evidence of clinical observation that the disturbance which it produces easily admits of repair by natural means, or may be completely controlled by sleep.

If, with these facts, we consider the nature of the movements themselves, which are precisely those of an asthenic state, combined perhaps with some irritation, we get some further insight into the choreic morbid process. The movements are not unlike those which we observe under other circumstances of great debility, and when general nutrition is impaired,—the subsultus of typhus—the paralytic shaking of old age—the tremblings of the habitual drunkard. In all these cases the development of the nervous force is materially impaired—the material of the nervous battery is nearly exhausted—the exciting fluid is weakened; and hence you have a feeble nervous force irregularly developed.

And the general history of the patients who suffer from chorea abundantly confims the view that the nutrition of the brain, and, indeed, of the whole nervous system, must be impaired. They are ill nourished, weakly persons, often badly clad, with a poor and pale blood, more or less infected with the matter of scrofula, or of rheumatism, or perhaps with some morbid matter peculiar to chorea itself, or generated in the system by a depraved primary assimilation.

And, looking to the state of the muscles themselves, we cannot pronounce them to be in a healthy state. In choreic patients the whole muscular system is in a more or less soft and flabby condition; and, if you compress the affected muscles, you do not find the firm resistance of a muscle contracting with its normal vigour, but rather that which indicates that the muscle acts with feebleness, and is incapable of perfectly developing the muscular force.

But some one will ask, if the phenomena of chorea are in any way dependent on a depraved and poisoned state of blood, how comes it that they are so frequently localized? This localization of chorea to one side of the body, or even to one limb, or to the muscles of the tongue, is by no means inconsistent with what we know of the laws of action of morbid poisons. Witness the fixation of the syphilitic poison to the skin and periosteum,—of the scarlet fever poison to the tonsils and lymphatic glands,—of measles to the lungs,—of cholera to the gastro-intestinal mucous membranes,—and look at the morbid localization of the matter of gout, as well as that of rheumatism, even in cases where the blood is largely charged with it. It in no degree militates against the humoral view of the pathology of gout, that the morbid matter selects the great toe as its favourite locality; nor against a similar view of the pathology of rheumatism, that its morbid poison is prone to attack the heart.

I have now, I hope, said enough to justify me in drawing the following conclusions respecting the pathology of chorea:—

1. That chorea is a disease occurring at a time when the nutrition of the brain is passing as it were through a state of transition, from that of infancy or very early childhood, to that of the adult period, when that organ is peculiarly prone to suffer from mental shock, or other causes of disturbance of the system, and more especially when the blood is in an unhealthy state, deficient in some of its staminal principles, or containing some morbid element.

2. That the part of the brain mainly affected is the centre of emotion, but that the extent to which it suffers is sometimes limited to one side of that centre, sometimes to both, again extending to the cerebellum or to the corpora striata, or optic thalami.

3. That the nature of the cerebral affection is one of weakened nutrition, with some degree of irritation; as poor blood, rendered perhaps impure by the presence of the matter of scrofula, or of rheumatism, or by some morbid matter peculiar to chorea, excites the nervous battery, and causes it to generate its force feebly and irregularly. The centre of emotion thus feebly excited and irritated by the presence of an abnormal ingredient in the blood, extends its feeble and irregular polarity to that portion of the centre of implantation of the nerves, which, as the polar state of the conductors of the battery is regulated by that of the battery itself, exhibit the same enfeebled polarity as the centre in which they are implanted.

Lastly. The disease is essentially one of depraved general nutrition, which must be set right before the symptoms which arise out of the local disturbances can be removed; and this is the point of practical interest which must regulate our treatment of the disease.

These conclusions respecting the pathology of chorea receive confirmation from the facts to which I have already alluded—namely, that choreic movements occur in certain gouty states, and also in white softening of the brain, arising from diseased arteries. Under both these conditions the nutrition of the brain, as well as

that of the nerves and muscles, must be depraved and weakened; depraved, especially in the former instance, by the matter or poison of gout; weakened in both.

And the treatment which is now by general concurrence, and with an unanimity which scarcely exists as regards the treatment of any other disease, pursued in cases of chorea, goes further to confirm these views. No one now a-days thinks of adopting for this malady any other treatment but one eliminatory and corrective of the various secretions, by the use of purgatives, and at the same time tonic and bracing to the nervous system, by the free application of cold water to the surface, and also tending to improve the quality of the blood, by a nourishing diet, by chalybeates, quinine, and various metallic tonics. And if, notwithstanding the use of these strengthening remedies, the nerves of the limbs still exhibit debility or paralysis, the application of the stimulus of galvanism rarely fails to excite and promote their nutrient activity.

This plan of the treatment of chorea has not been adopted with such general consent without the previous trial of other plans. Sydenham, as is well known, treated chorea by bleeding; but he appears to have had very little experience of the disease. The authority of Sydenham appears to have led his successors to continue this mode of treatment; and even Cullen had not wholly abandoned it,—so hard is it to give up a practice sanctioned by high names. Heberden, indeed, had arrived at a different conclusion. This eminently practical physician says—"Bleeding and purging, and violent medicines, can hardly be judged proper for a distemper attended with no inflammation nor heat, and particularly incident to a very tender age, and to the weaker sex; and which, if left entirely to itself, would, I believe, generally cease spontaneously, and leave the constitution unhurt. This reasoning, he adds, appears to me to have been justified by fact and experience. When they have been used, I never saw any good effects from them, and rather suspect that they have done mischief.

In the acute form of general chorea, it is very important that the practitioner should not suffer himself to be led by the urgency of the symptoms, and the violence of the movements, into the adoption of any depleting or depressing treatment under the notion of stopping the movements by reducing the powers of the patient. The more you weaken the patient under these circumstances, the more incessant and urgent will the movements become. Great diligence, however, is needed in administering support and stimulants with the utmost freedom, and in throwing in large quantities of quinine and iron, or other tonics, care having been previously taken to unload the bowels by clyster or by purgatives. Great benefit also arises from the free and frequent use of the cold bath; from what I have myself seen, I would say that the greatest immediate benefit arising from the use of the cold bath is from its exciting a disposition to sleep much more decidedly than opiates, which do not generally act favourably in any of the forms of chorea.

Medical Gazette, April 27, 1849, p. 724.

25.—*On the Action of Medicines which influence the Nervous System.*—By Dr. A. B. Garrod.—We have seen that the composition of the nervous tissues differs remarkably from that of other textures, in containing a large amount of phosphorized fatty matters, which have been named cerebrin and phosphorized oil; that is, fats having phosphorus, in an unoxidized condition, entering into their constitution, in the same manner that iron forms an essential element of hæmatosine, or the blood pigment. We have found also, that, according to Dr. Bence Jones, the elimination of the phosphates is increased in acute inflammation of the brain, the excess in these cases doubtless arising from the increased waste of the phosphorized fats; and the conversion of the phosphorus into phosphoric acid. These facts certainly indicate that phosphorus forms an important element of the nervous system. On reviewing the remedies which appear to have a direct influence on different portions of the nervous centres, we find that the most prominent among them are certain principles derived from the vegetable kingdom—viz., the vegetable alkaloids—bodies, all of which contain nitrogen in their composition, with the exception, perhaps, of picrotoxia; but even this requires confirmation. The parts of the nervous system upon which the action of these principles is directed differ considerably—some, as morphia, and codeia, acting on the brain; others, as strychnia, brucia, &c., on the spinal cord; others, again, as digitalia, nicotina, on the heart, through their influence probably on the ganglionic nerves. It was formerly supposed that the essential oil of bitter almonds was poisonous, from its influence on the nerves; if such were the fact, it would prove a very striking exception to the rule which we have found to hold good in so many cases; Wöhler and Frerichs, however, have shown, that when entirely freed from prussic acid its effects are perfectly harmless.

We also find that there are bodies in the mineral kingdom which produce similar effects, among which the most striking examples are seen in the metals arsenic and antimony; and in others, in a more or less degree. The same also may be said of phosphorus itself, when given in an unoxidized form; and perhaps, also, of ammonia.

When considering the nature of the elementary substances in our introductory lectures, you will remember that we arranged them in certain groups, and stated, at the time, that the elements in each group, however unlike in physical conditions, yet possessed properties which, in a chemical point of view, brought them in very close relation to each other. One of these classes consisted of arsenic, antimony, phosphorus, and nitrogen—elements very nearly allied to, and frequently having the power of replacing, one another in compounds. Hence, then, we find that the substances which have the power of acting most powerfully on the nervous system are those which contain in their composition arsenic, antimony, nitrogen, and also phosphorus. The first two elements appear to operate when administered in any state of combination, provided they are absorbed into the blood; the two latter require to be in

certain peculiar states, as they are themselves normal constituents of the animal body; and with regard to nitrogen, different amounts of this element and the different states in which it exists, appear to endow it with different properties. That different methods of combination of the elements influence greatly the effects of a substance on the economy is beautifully exemplified in the action of the different cyanides; ferrocyanide of potassium (the common prussiate) being harmless, whereas when heated to redness in a closed vessel, it is converted into a most deadly poison, from the change of the ferrocyanide into the simple cyanide of potassium. Again, we can trace still further analogies between these different cerebro-spinants; thus, quina, containing nitrogen, has its properties nearly approached by arsenic; and antimony, in its power of subduing vascular action, appears not very unlike the active principle of digitalis. Of course we only wish these remarks to be considered as purely hypothetical; but still it is interesting to notice any circumstances which seem to throw the slightest glimpse of light on the action of any therapeutic agents.

Lancet, Dec. 30, 1848, *p.* 709.

26.—*Use of Chloroform in Toothache.*—Mr Tomes, in his Lectures on Dental Physiology and Surgery, recommends chloroform to be applied on a little cotton wool to the tooth in order to remove the pain. The best form for application is made by dissolving a little gum mastic in the chloroform, whereby the fluid is thickened; and, when put into the tooth with cotton wool, will remain there a long time, and keep up its sedative influence; whereas, if the chloroform be used alone, it will be soon washed away by the saliva, and its effect lost.

Medical Times, Dec. 2, 1848, *p.* 131.

27.—*Use of Chloroform in Neuralgia.*—M. Leriche (L'Union Médicale, 1 Janvier, 1848), relates the case of a patient suffering from neuralgia of the cervical plexus. The attacks came on at intervals of one or two months, and lasted several days, in spite of the remedies employed. On one occasion, M. Lériche administered about fifteen or twenty drops of chloroform on a handkerchief. The pain was instantly removed, and the patient remained free for two hours, when it was again removed by a similar inhalation. Dr. Contal, of Vezelise, employed friction with chloroform in several cases of neuralgia. One was a case of facial neuralgia on the right side. Twenty-three drops were rubbed in, which procured relief for two hours; after which the pain returned, but with less intensity, and was relieved by the application of ten drops. A third application of the chloroform was required during the night, after which there was no return of the neuralgia. In another case, there was intercostal neuralgia on the right side. Fifteen minims of chloroform were rubbed in, and produced relief for half an hour. The pain then returned in the breast, but was entirely removed by friction, with ten drops. In a third case, erratic rheumatic pains

had become fixed in a severe form, in the left intercostal region. They were totally removed after the sixth friction. The local application of chloroform, in these cases, produced either a slight and transient burning sensation, or of a very cold body being applied. [Gazette des Hôpitaux, Feb. 3, 1849.] In a case of dental neuralgia, arising from caries of a molar tooth, Dr. Pigeolet applied a drop of chloroform to the affected tooth, with the effect of relieving the pain. [Gaz. Méd de Paris, Feb. 3, 1849.]

London Journal of Medicine, April, 1849, *p.* 366.

28.—*Use of Chloroform in Hiccup.*—In the case of a gentleman, forty-six years of age, of weak constitution, and highly nervous temperament, M. Latour employed chloroform during a very severe attack, which had lasted during three hours, the convulsions of the diaphragm occurring at intervals of six or eight seconds. A bottle containing chloroform was applied to the nostrils, and removed after a few inspirations. At the first removal, a temporary cessation was produced, and three applications of the chloroform bottle entirely put a stop to the paroxysm. [L'Union Médicale, 30 Dec., 1847.]

London Journal of Medicine, April, 1849, *p.* 365.

ORGANS OF CIRCULATION.

29.—ON POLYPIFORM CONCRETIONS IN THE CAVITIES OF THE HEART.

By Dr. O'B. Bellingham, Dublin.

[Dr. Hope and M. Bouillaud classified the so-called polypi of the heart into three kinds, viz., unorganized, slightly organized, and more completely organized. Dr. Bellingham proposes a different arrangement of them. He says:]

I propose to consider these concretions under the following heads, viz.:—1. Concretions consisting of a coagulum coated with fibrine. 2. Concretions consisting exclusively of fibrine. 3. Concretions consisting exclusively of lymph. 4. Concretions consisting of lymph coated with fibrine.

1. *Concretions consisting of a coagulum coated with blood.*—These (which, however, scarcely deserve the name of polypi, inasmuch as they are either a post-mortem occurrence, or are formed only during the last hours of life,) consist of a more or less firm coagulum of blood, partially or completely coated with fibrine, which fills and distends one or both the cavities of the right side of the heart particularly, and frequently extend into the large vessels, but are scarcely adherent to the parietes. They occur in cases in which the blood had accumulated during the last hours of life in the right

cavities of the heart; and their occurrence is to be regarded rather as a pathological phenomenon than as a circumstance of any practical importance.

The three other forms of these concretions are developed during the life of the patient, are accompanied usually by sufficiently well-marked symptoms, and are frequently the immediate cause of death; whether the diseased state under which they arise have its seat in the heart itself, in the lungs, or in some other part.

2. *Concretions composed exclusively of fibrine.*—In these, which are the most frequent, the concretion consists of fibrine; it has a yellowish white colour, is semitransparent, more or less elastic, and more or less adherent to the parietes, particularly to the carneæ columnæ and tendinous cords of the valves. It occurs in cases in which a considerable impediment to the circulation had existed for some time previous to the patient's death, whether this impediment was seated in the heart or in the lungs; in consequence of which, the fibrine of the blood separates from the other constituents, and concretes upon the valves or orifices, or upon the parietes of the ventricles or auricles. These fibrinous concretions may be developed in any disease in which the circulation through the cavities of the heart is much impeded. They are met with in acute bronchitis, in pneumonia, and in the advanced stages of valvular disease; and they are not unfrequently the immediate cause of death in these diseases.

3. *Concretions composed exclusively of lymph.*—These, which are the most rare, are altogether different in their origin from those which precede; while the former are developed by the mechanical separation of the fibrine from the other constituents of the blood in its transit through the heart, the latter are deposited by the vessels themselves which supply the lining membrane of this organ. This form of concretion occurs in cases of inflammation of the lining membrane of the heart; it usually has its seat upon the valves or orifices of the left side of the heart, and it is deposited by the vessels of the part the seat of the inflammation: in fact, as it is derived from the vessels which supply the tissue of the heart with blood, its source is as different as is the blood which circulates through the heart from that which supplies nutriment to this organ.

4. *Concretions consisting of lymph coated with fibrine.*—This form of concretion is a combination of the two last species; it is much more frequent than that last described, but more rare than the two former species. In it, the nucleus is lymph, which is deposited upon the valves or orifices as the result of acute or chronic endocarditis; but the great bulk of the concretion consists of fibrine deposited upon it, sometimes in concentric layers, as we see in aneurismal sacs. This form of polypous concretion occurs in cases where the lining membrane of the heart had been at a former period the seat of inflammation, and where a considerable impediment to the circulation through this organ had existed for a longer or shorter time previous to the patient's death. Like the last species, it is found in the left cavities of the heart.

These four forms of polypous concretion are not all of equal frequency, some are sufficiently common, others are exceedingly rare; some are usually only found upon the right side of the heart, others only upon the left. The concretions composed of coagulated blood or of fibrine are most frequent in the right cavities of the heart, and often extend through the auriculo-ventricular orifices, or into the large vessels. Those which consist of lymph, or of lymph coated with fibrine, are most frequent in the left cavities of the heart. The former are sometimes of such a size as to fill and distend the cavities of the heart; the latter, in general, merely impede the action of the valves; when composed of coagulated blood or of fibrine, they are smooth upon the surface, and moulded to the shape of the cavity in which they are contained; when composed of lymph exclusively, their surface is uneven and their shape irregular. The concretions consisting of coagulated blood are not adherent, though they may be entangled among the carneæ columnæ, or chordæ tendineæ; those which consist of fibrine are more adherent, but may still always be detached; those composed of lymph, or in which the nucleus consists of lymph, are intimately adherent to the part upon which they are deposited.

The concretions which consist of fibrine are the most frequent, and the opinion has been advanced on very respectable authority, that these fibrinous masses not only become organized, but that they undergo the changes which organized tissues in other parts are found to undergo, such as softening, the formation of pus, &c.; and that they are sometimes united by cellular tissue to the lining membrane of the cavities of the heart. Thus, Bouillaud, describing them, observes: "They are white, decolourized, elastic, glutinous, adherent to the parietes of the heart, and confused with the tendinous cords and fleshy columns. They are in some sort half-organized, and very analogous either to the inflammatory crust of the blood, or to false membranes. Some present here and there points, or red lines, which are really nothing more than the rudiments of vessels." Dr. Hope observes, speaking of the slightly organized polypi: "It may be premised as a fact ascertained by observation, that *fibrine* separated from the blood, and become concrete in a living organ, (whether *the heart, the bloodvessels,* or serous, cellular, or other tissues into which it had been extravasated,) retains its vitality, and is susceptible of organization in an equal degree with *inflammatory lymph.*"

This view of the subject is evidently incorrect: those masses of fibrine are unorganized, and incapable of becoming organized; nor are they ever united to the lining membrane of the heart by cellular tissue. Indeed, a knowledge of their composition, and of the manner in which they are formed, ought to have been sufficient to set aside such an absurd idea, consisting as they do simply of one of the constituents of the blood, mechanically separated from the others in its transit through the heart.

The concretions which consist of lymph, instead of being derived from the blood which circulates through the heart, are deposited by

the vessels of the inflamed tissue, and being analogous to the false membranes secreted by serous surfaces, may evidently become organized: in fact, the vegetations found upon the valves and orifices of the heart, consecutive to endocarditis, are nothing more than these concretions upon a small scale. Deposits of lymph in the cavities of the heart, of such a size as to deserve the name of polypous concretions, are, however, very rare; more frequently the nucleus is lymph, and the great bulk of the concretion is made up of fibrine, deposited upon it either in amorphous masses or in regular stratified layers. In some instances, however, such an amount of lymph is secreted as not only to impede the action of the valves, but to obstruct the circulation through the cavities of the heart, and to occasion the death of the patient. An example of this kind I communicated to the Surgical Society some time since, and the preparation is now in the Museum of the College.

The concretions which form in the cavities of the heart during life, we have seen to consist either of fibrine or of lymph, or of both. That which consists of coagulable lymph, is a product of inflammation; that which consists of fibrine, is not a product of inflammation. The former is deposited upon the inflamed surface by the vessels which supply the heart itself with blood; the latter is mechanically separated from the blood which circulates through the heart. These two substances differ from one another, not only in appearance, but in composition, in the mode of their production, and in the circumstances which give rise to their deposition; yet we find that the terms fibrine and coagulable lymph are still used indiscriminately by writers to designate the same substance. Thus Dr. Williams, in his Elements of Medicine, observes (page 98): "Fibrine, or the buffy coat of the blood, is also the material of which new membranes and cicatrices are formed, constituting the coagulable lymph which is the plasma or basis of the constructive or reparative process."

Fibrine, we know, may be mechanically separated from healthy blood by washing repeatedly with water either the crassamentum of blood drawn in venesection, or the coagula which adhere to twigs, with which the recently drawn blood of animals is briskly stirred; the whitish elastic mass obtained in this way resembles in every particular the fibrinous concretions found in the cavities of the heart, and which have received the name of polypi. Now fibrine, whether it is separated from the blood which circulates through the cavities of the heart, or whether it is deposited in concentric layers in an aneurismal sac from the blood which passes through it, or whether it is mechanically separated from blood removed from the body, is a perfectly unorganized substance, and is perfectly incapable of becoming organized.

Coagulable lymph, on the other hand, is a product of inflammation; it is deposited by the vessels upon the part the seat of the inflammation, and it cannot be separated from healthy blood. That it is an organizable substance, and that it does become organized, is also sufficiently proved by pathology. Recent microscopic ob-

servations have shown that the state of inflammation is accompanied by a great increase in the number of the white or colourless globules of the blood; these white or lymph globules exist in healthy blood, but are more numerous in blood drawn in states of inflammation, (as shown by Mr. Gulliver,) and in blood taken from an inflamed part their number is still greater. The buffy coat of the blood consists of these colourless globules and fibrine; and the lymph effused upon the surface of inflamed serous membranes has the same composition.

Now, as coagulable lymph differs widely from fibrine, the indiscriminate application of the same term to both is to be deprecated; indeed, the vague manner in which the terms fibrine and lymph are still used has led to much confusion; the fibrinous masses which form in the cavities of the heart, and the concentric layers of fibrine which are deposited in aneurismal sacs, being erroneously supposed to be analogous to lymph, and equally capable of becoming organized. We can never have accuracy of description unless the terms we employ are properly defined and restricted. The term fibrine ought to be confined to the unorganized material mechanically separated from healthy blood; the term lymph, to the organized substance deposited in, or upon, the surface of inflamed parts.

[The treatment of these cases can be little more than palliative, since they soon terminate fatally. Various means have been recommended with a view of dissolving the concretions, but the absurdity of such practice is obvious. Dr. Bellingham says in conclusion:]

The following conclusions appear to be deducible from the preceding details:—

1. That concretions occasionally form in the cavities of the heart, during life, of such a size as to impede the action of the valves, to obstruct the passage of blood through this organ, and to occasion the death of the patient.

2. That these concretions, although termed polypi, have no analogy whatsoever with polypi, either in appearance, composition, or mode of development.

3. That certain diseases of the lungs or heart, as bronchitis, pneumonia, endocarditis, valvular disease, &c., sometimes owe their fatal termination to the formation of these concretions in the cavities of the heart.

4. That the concretions which form during life in the cavities of the heart may consist either of fibrine or of lymph, or of lymph coated with fibrine.

5. That the concretions composed of fibrine are most frequent upon the right side of the heart, but may occur on both sides; and that the concretions which consist of lymph, or of lymph coated with fibrine, are usually found only on the left side of this organ.

6. That fibrinous concretions, whether they occur in amorphous masses, or in stratified layers, are deposited from the blood which circulates through the heart. That concretions composed of lymph,

whether this forms the substance of the mass, or merely its nucleus, are deposited by the vessels which supply the heart itself with blood.

7. That fibrine, whether it constitutes the substance of these concretions, or whether it is deposited in concentric layers in the sac of an aneurism, is perfectly unorganized, and perfectly incapable of becoming organized. That lymph, on the contrary, is an organizable substance, and quite distinct from fibrine, with which it is still confounded by some physiologists.

8. That where pus has been found in fibrinous concretions contained in the heart, its presence is to be regarded as the result of phlebitis, not as a product of inflammation in a substance which is quite unorganized, and consequently incapable of undergoing such changes.

9. That increased extent of dulness in the præcordial region, confused or irregular action of the heart, intermission or irregularity of the pulse, or an abnormal murmur accompanying the heart's sounds, are not necessarily symptoms of the development of a polypous concretion in the cavities of the heart.

10. That no means are known by which polypous concretions in the heart, once formed, can be dissolved; consequently, the administration of substances which render the blood more fluid, or which are supposed to be capable of dissolving them, can have no useful effect.

Dublin Medical Press, Feb. 7, 1849, *p.* 83.

30.—*On the Use of Oil of Turpentine in Hemorrhage.*—[Oil of turpentine taken internally is of the greatest use in hemorrhages from the mucous surfaces:]

It may be proper to mention, that John Hunter had great confidence in the styptic properties of oil of turpentine. In treating of the suppression of hemorrhage, "A dossil of lint," he says, "dipped in oil of turpentine, after having first wiped the wound clean, in order that it may reach the vessel, is the best, and may be renewed pretty often. I have seen it immediately stop vomiting of blood from the stomach, after all other means had failed, given internally with white of egg as often as the stomach would bear it. In external hemorrhagies, where it had not the desired effect applied externally, I would give it internally. It is the best, if not the only true styptic. Thus in a case of nasal hemorrhage, which nothing would stop, I gave ten drops of oil of turpentine in a draught, and repeated it every two or three hours, which entirely stopped the bleeding in less than twenty-four hours; and it never returned.

On this passage a note is given to the following effect: "It is scarcely necessary to observe, in the present day, that this eulogium on the oil of turpentine is unmerited." What then becomes of the recommendations lately given by Dr. Seymour and Mr. Vincent? It is supposed that John Hunter derived his ideas of the styptic properties of oil of turpentine from the book of James Yonge.

Edinburgh Medical and Surgical Journal, April, 1849, *p.* 493.

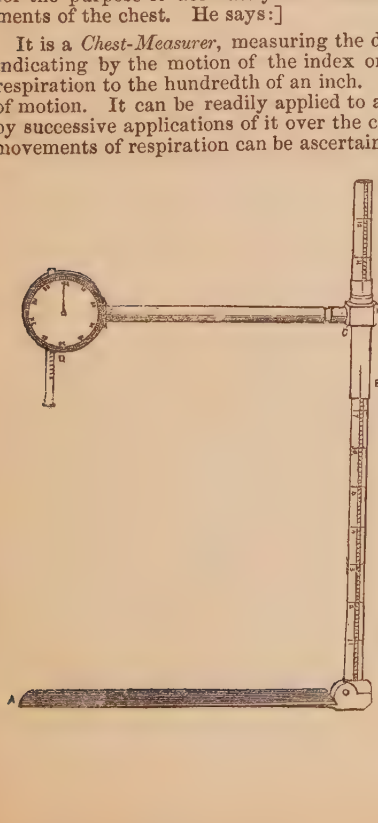
ORGANS OF RESPIRATION.

31.—ON THE MOVEMENTS OF RESPIRATION IN DISEASE.

By Francis Sibson, Esq., Resident Surgeon to the Nottingham Hospital, &c.

[Mr. Sibson has published a very elaborate paper in the last volume of the Medico-Chirurgical Transactions, on the movements of respiration in disease. Notwithstanding the labours of many high authorities on diseases of the chest, little or nothing was definitely known upon the subject, if we except the interesting facts ascertained by Mr. Hutchinson, some of which were noticed in our fourteenth and fifteenth volumes. In order therefore to give precision to his investigations, Mr. Sibson got an instrument made for the purpose of accurately and minutely measuring the movements of the chest. He says:]

It is a *Chest-Measurer*, measuring the diameter of the chest, and indicating by the motion of the index on a dial any movement of respiration to the hundredth of an inch. It is in fact a micrometer of motion. It can be readily applied to any part of the body, and by successive applications of it over the chest and abdomen, all the movements of respiration can be ascertained with minute accuracy.



The character as well as the extent of motion may be read off from the dial. It indicates the rhythm of respiration, showing whether the expiration be equal to, longer, or shorter than, the inspiration.

The chest-measurer shows the exact amount of chest movement, both during tranquil breathing and the deepest possible inspiration and expiration. It thus tells indirectly the extreme breathing capacity of the chest, which is rendered perfectly by the "spirometer" with which Dr. Hutchinson has made so many valuable observations. In this respect it is indeed a "pocket spirometer."

Description of the Chest Measurer.

A. Brass plate, covered with silk, on which the patient lies.

B. Upright rod, divided into inches and tenths, to indicate, by the slide at B, the diameter of the chest.

C. B. Slide, moving on the vertical rod B, and carrying the horizontal rod and dial, C. D.

C. D. Horizontal rod, dial and rack (D). This rod can be drawn out like a telescope from C—an outer rod sliding on an inner; and as the outer rod can be rotated on the inner, the inclination of the rack and dial can be varied at will, by the finger and thumb. This combination of slides forms a universal joint.

D. Rack and dial. The rack, when raised by the moving walls of the chest, moves, by means of a pinion, the index on the dial. One revolution of the index indicates an inch of motion in the chest; each division indicates the 100th of an inch.

The chest-measurer packs into a pocket case.

[In order to employ this instrument, the patient may be either in the sitting position, or lying quite straight in bed: the latter is the better position. The patient lies on the flat plate which forms the base of the instrument, and is directed to look steadily at the ceiling, that his attention may not be attracted to the movements of the dial. The instrument being then held perfectly steady, the rack and dial are successively moved over every part of the chest and abdomen where the observations are to be made. In order to form a standard by which to examine diseased persons, Mr. Sibson first tells us of the]

Motions observed by the Chest-Measurer during an Ordinary Inspiration.—In robust healthy males from the age of twelve to forty-five, the motion of the first six ribs (the thoracic and the uppermost of the intermediate set) was found to be trifling, but still in every case and everywhere some slight motion existed.

The motion of the upper end of the long bone of the sternum is usually from ·02 to ·06 in.; that of the lower end is about the same. The motion of the upper end is often greater than that of the lower; but the reverse is sometimes the case. The motion of the second ribs near their costal cartilages is a little greater than that of the corresponding portion of the sternum. The sternum is, indeed, pushed forward by those ribs through the medium of their cartilages; but a part of the force is spent in slightly bending the cartilages, and consequently the forward motion of the second ribs is necessarily greater than that of the strenum; thus, while the movement of the sternum is from ·02 to ·06 in., that of the second rib is from ·03 to ·07 in.

The advance of the sixth costal cartilages ususally corresponds to that of the lower end of the sternum, being from ·02 to ·06 in.

The movement of the fourth and fifth costal cartilages is usually scarcely equal to that of the second ribs.

The lateral expansion of the sixth rib is in almost all cases less than the forward motion of the sixth costal cartilage; but in this

comparison the lateral expansion of each sixth rib is taken separately, while the whole forward movement over the sixth cartilage is observed from dorsum to sternum: the whole lateral expansion of the chest, from sixth rib to sixth rib, is equal to, or even greater than, the whole antero-posterior expansion of the chest over the sixth costal cartilage.

Owing to the presence of the heart, the motions of the left fourth, fifth, and sixth cartilages, and the sixth rib, and indeed of all the left lower ribs, are less than those of the right; the difference being most usual and greatest over the fourth and fifth cartilages, and at the lateral expansion of the sixth rib.

The motions of the five superior or thoracic ribs are, with the exceptions stated, everywhere pretty nearly equal.

The lateral motions of the eighth and tenth ribs are almost invariably greater than those of the thoracic ribs and cartilages, so long as the breathing is quite tranquil, and the motion of the thoracic ribs small; the lateral expansion of the eighth and tenth ribs ranges usually from ·05 to ·1 in., while the motions of the thoracic ribs and cartilages vary from ·02 to ·05 in. It will be remarked, that if the motion of the thoracic ribs be greater than usual, say ·06 to ·1 in., the lateral motion of the eighth and tenth ribs is not increased, and then all the costal motions are nearly equal.

There is very little difference between the exact motion of the ribs in healthy robust boys and in men, from the age of ten upwards to forty-five. This rule does not, however, obtain with regard to the diaphragm; for while in man, during tranquil respiration, the advance of the centre of the abdomen between the xyphoid cartilage and the umbilicus is from ·25 to ·35 in., in boys and youths it is from ·2 to ·25 in.

The movements of the abdomen to each side is about the same in boys and men, being usually from ·08 to .12 in.

It is manifest, from these observations, that in tranquil breathing diaphragmatic respiration far outweighs costal, in the proportion of about 30 to 5. It is also evident that the eighth and tenth ribs have a greater expansion than the thoracic ribs, owing to their action being auxiliary to that of the diaphragm.

Summary of the Respiratory Movements in Health.—In the healthy, robust male, the movement of the sternum and of the thoracic and intermediate ribs, from the first to the seventh, is from ·02 to ·07 in. during an ordinary inspiration, and from ·5 or ·7 in. to 2 in. (the amount varying with the extreme breathing-capacity) during a deep inspiration. The ordinary abdominal movement (diaphragmatic) is from ·25 to ·3 in; the extreme, ·6 to 1·6 in. The ordinary lateral expansion of the diaphragmatic or lower ribs is greater, and the extreme expansion is usually less, than the respective ordinary and extreme expansion of the thoracic or upper ribs. The expansion of the second ribs is usually alike on both sides; below, all the inspiratory movements, especially those over the heart, are usually somewhat less on the left side than on the right, both during ordinary and extreme inspiration.

In the healthy boy, owing the greater flexibility of the costal cartilages, the extreme movement of the thoracic ribs is greater in proportion to the breathing-capacity than it is in the adult: the upper portion of the sternum advances more than the lower end during a deep inspiration; but there is little decided difference during tranquil respiration.

In the old man, owing to the consolidation of the cartilages, the motion of the sternum during inspiration is usually greater than that of the ribs (in youth it is less), and the lower end of the sternum usually advances more than the upper.

In females the thoracic expansion is exaggerated, and that of the diaphragm and the lower ribs is restrained, owing, in great part, to the use of tight stays. The difference is much greater when the stays are on than when they are off.

When the stays are on, the thoracic movement at the second ribs is from ·06 to ·2 in.; the abdominal, from ·06 to ·11 in. When they are off, the thoracic movement is from ·03 to ·1 in.; and the abdominal from ·08 to ·2 in.

The restrained movement of the lower ribs during a deep inspiration is much greater when the stays are on than when they are off.

In infants, the thoracic expansion is considerable, being from ·02 to ·12 in.; while the abdominal is from ·06 to ·15 in. The lower end of the sternum and the adjoining ribs usually recede during inspiration, especially if the abdomen be large, and the inspiration quick or sobbing.

[Mr. Sibson then proceeds to treat of the disturbance of the respiratory movements effected by various classes of diseases. Various diseases altogether external to the chest restrain the *motions of the ribs*. Thus lateral curvature of the spine, injury or disease of the ribs, pleurodynia, diseases of the mamma, axilla, shoulder and arm, and probably hemiplegia, restrain the motions of one side: and posterior curvature restrains them on both. On the other hand, certain circumstances, as the loss of an arm, permanently exaggerate the costal motions on one side. The *diaphragm* has its motion restrained by peritonitis, diseases of the liver, abdominal tumours, and aortic aneurism; and to a less degree, by abdominal distension from flatus, or ascites. Of the diseases in the respiratory organs themselves, Mr. Sibson first speaks of obstruction in the large air passages. He says:]

Obstruction to respiration in the outer air-passages may arise from clogged and narrowed nostrils and palate, enlarged tonsils and narrowed fauces, larynx or trachea; obstruction to respiration in one lung, from narrowed or clogged right or left bronchus.

In cases where the air-passages are materially obstructed, owing to the elongation and collapse of the lungs, the chest is flattened, narrowed, and elongated, the lower margins of the lungs are unusually low; from the presence of the liver, the right side is fuller than the left, and, from the collapse of the left lung in front, the

heart is in great part in contact with the walls of the chest, its impulse being extensive.

The diaphragmatic descent and abdominal protrusion are very rapid and sometimes extensive, but generally the abdominal protrusion is diminished; the lungs, admitting air with difficulty, are lengthened, and, owing to atmospheric pressure, they collapse, and the sterno-costal walls, especially at the lower end of the sternum, fall backwards. The thoracic walls, in some places, often recede at first and then advance during inspiration.

The extent of the reversed thoracic motion is in proportion to the narrowing of the air-passages and to the extent and rapidity of the diaphragmatic descent.

During a deep inspiration, many parts of the thoracic walls, that fall in at the beginning of the act or during tranquil breathing, advance considerably as the expiration is prolonged.

The inspiration is shorter than the expiration, especially in laryngitis: the expiratory falling back of the abdomen is often quick at first and then slow, but the expiratory falling back of the thoracic ribs is always equally slow throughout.

[Speaking next of obstruction in the smaller bronchial tubes, bronchitis, and vesicular emphysema, Mr. Sibson says:]

In emphysema, and, to a less extent, in bronchitis, the form of the chest and abdomen and the position of the viscera are the same that they are during the deepest possible healthy inspiration.

The chest is full and prominent, the shoulders raised, the spine curved, the sternum forward, the costal cartilages at each side of it full, but not so prominent as usual. The diameter of the chest is everywhere increased, the opposite seventh costal cartilages below the sternum are stretched far apart.

The abdomen just below the prominent xyphoid cartilage is unusually hollow; the diaphragm is low and flat; the lower boundaries of the lungs and heart are a full inch lower than in the normal state. The heart is nearly covered with lung, the exposed portion of it, and consequently its impulse, being below the sternum, behind and to the left of the xyphoid cartilage.

During inspiration the diaphragm descends only from one-third to two-thirds of an inch, and the lower boundaries of the lungs and heart, and the upper boundaries of the abdominal organs, necessarily descend to the same extent. The cardiac region is lowered and lessened, the impulse becoming stronger and lower. The respiratory muscular actions are much exaggerated, while the movements are not proportionally, often not at all, increased.

The diaphragm descends, the abdomen protrudes, and the superior thoracic (first, second, third, and fourth) ribs ascend and advance with energy; at the same time, the lower end of the sternum and the sixth cartilages fall backwards in the greater number of cases, from childhood to the age of 50.

The rhythm of respiration is materially and characteristically affected in emphysema and bronchitis. The inspiration is short, the

expiration is prolonged. During inspiration, the air enters rapidly during the whole act, but the facility for inspiration increases towards the end. During expiration, the air rushes out easily and quickly at first, but with increasing slowness and difficulty towards the end. During inspiration, the air-tubes become larger towards the end, therefore inspiration is then easier; during expiration the air-tubes become smaller towards the end and more clogged with fluid, and therefore expiration is then more prolonged and difficult.

The expiration is more prolonged in proportion to the obstruction in the smaller air-tubes; it is longer in emphysema when combined with bronchitis, than in either emphysema or bronchitis simply. It is more prolonged when the obstruction is in the smaller, than when it is in the larger, bronchial tubes.

During inspiration the abdomen advances very rapidly; the upper part of the sternum and thoracic ribs stand still just at first, and then advance rapidly; the lower end of the sternum and the adjoining cartilages fall back usually during the whole act, sometimes only at the beginning of it, unless there be malformation of the chest or stiffness of the cartilages.

During expiration the abdomen recedes very rapidly at first, then stands still, and again falls back interruptedly, and with increasing slowness; the upper part of the chest stands still just at first, then falls back rapidly, and becomes progressively slower towards the end of the act; the lower end of the sternum advances during the whole time, or it advances at first and then falls back.

The increasing slowness towards the end of expiration distinguishes obstruction of the smaller bronchi from obstruction in the larynx, in which latter case it is also prolonged, but is equally slow throughout.

[Passing over Mr. Sibson's remarks on pleurisy and its consequences, we next take his]

Summary of the effects of phthisis on the movements of respiration.— In the earlier stages, the movements over the diseased portion of lung are restrained. When a mass of lung is solidified by tuberculous disease, the mobility is still further restrained.

When cavities are formed, their inspiratory expansion is much diminished, chiefly by the firm, tendinous, and pleuritic adhesions that embrace the diseased portion of lung.

There is almost invariably some movement of inspiration over the cavity. But although the part in question always advances during inspiration, especially a deep inspiration, yet, at the beginning of the inspiration it sometimes recedes slightly, and frequently stands still just before its inspiratory advance.

The respiratory expansion and movements over a cavity are greatest just towards the end of inspiration and the beginning of expiration, when the cavity and the tubes leading to it are the largest, and when the fluid in the cavity lies in its hollow, and does not plug the bronchial tubes. The obstruction to the movement over many cavities, especially those containing liquid, is greatest just

at the beginning of inspiration, and towards the end of expiration, when the cavity and tubes are at the smallest, and the fluid, its amount being the same, plugs the bronchial tubes. The obstruction to cavernous respiration varies with the amount of fluid in the cavity and its tubes.

The firm walls surrounding a cavity have no inspiratory expansion: the respiratory movements over the region of dulness surrounding a cavity are much smaller than those over the cavity itself; they are often immobile; their motion is often reversed at the beginning or through the whole course of inspiration and expiration.

The reversed motion is most frequent over the third and fourth cartilages.

The motion of the lower end of the sternum, and the sixth cartilages, on the affected side, is often reversed by the diaphragmatic lengthening and collapse of the lung.

The descent of the diaphragm is somewhat restrained on the affected side, in about one-half of the cases; the motion of the right diaphragmatic ribs is more frequently diminished than that of the left, when the respective superior lobes are diseased, owing, I believe, to the presence of the enlarged liver.

When the whole lung is more or less consolidated, and its expansion obstructed by tendinous adhesions, the lateral expansion of the whole affected side of the chest is lessened.

If the diaphragm act freely, the movements of the sixth costal cartilage on the affected side may be reversed. Those of the superior thoracic ribs, over the cavity, are never reversed throughout, seldom even at the beginning of inspiration and expiration, but those of the third, fourth, and fifth cartilages are often prevented and reversed.

The respiratory movement of the opposite lung is, in the great majority of cases, exaggerated.

[Our limits will not permit us to give Mr. Sibson's interesting observations at greater length: for further information, and for the verification of those of Mr. Sibson's conclusions which we have given above, we beg to refer our readers to the original paper.]

Medico-Chirurgical Transactions, 1848, *p.* 353.

32.—*On Thoracic Vibration, as a Means of Diagnosis in Diseases of the Lungs.*—By M. Monneret.—By thoracic vibration is meant the sensation imparted to the hand placed on the chest of a person while speaking aloud or singing. He should pronounce some words in a loud and measured tone, which he will best do by being told to count some numbers. The linen or flannel shirt should be alone left on, and the patient seated while the lateral and posterior portions of the thorax are examined, and laid on his back while the anterior portions are so. The hand is then to be rapidly passed over the different regions of the chest, with a sufficient degree of pressure; and it is essential to remember that these normally fur-

nish different intensities of vibration. Thus, the right side oscillates far more strongly than the left; and the following is the order in which the intensity decreases in the various parts: 1. The larynx and the trachea, as far as the sternum. 2. The four last cervical, and four or five first dorsal vertebræ. 3. The right sub-clavicular and sterno-mammary regions. 4. The same on the left side. 5. The space comprised between the spinous processes of the cervical and dorsal vertebræ and the inner edge of the scapula. 6. The posterior and lateral regions. 7. The sternum and supra-spinal fossæ. 8. The anterior and inferior parts, i. e., the præcordial and hypochondriac regions. The thorax is not the only part which transmits this vibration freely, for it is felt along the whole dorsal and part of the lumbar spine. Its intensity is very great at the cephalic extremity of this, especially the sinciput. The vibration is diminished if the chest is covered with thick muscles, or if there be deposits of fat or serum, and is very feeble in the mammary region in women. In those who have long, thin chests, or who have fallen into a state of marasmus, it is very perceptible.

Among the diseases in which the *intensity of the vibration is increased*, *pneumonia* may be first mentioned; and so marked is the increase in this disease, that it becomes an immediate means of distinguishing it from pleurisy. In fifty cases carefully noted, the vibration was always found remarkably increased when the inflammation occupied an entire lobe, or implicated the middle or lower lobes. The undulation indeed was just as great in pneumonia of the upper lobe; but, as in the normal state, the pectoral regions corresponding to this part of the lung vibrate more forcibly than at other parts, it requires more attention and a more accurate comparison of the two sides. Under the clavicle, in the axilla and the supra-spinal fossa, the vibration is often twice as strong as on the sound side. If the pneumonia (or tubercle) occupy the summit of the left lung, as the vibration is here normally more feeble than on the right side, we now find the two sides becoming alike in this respect. After a few weeks' practice in gaining familiarity with the normal differences prevailing at different portions of the thorax, the detection of pneumonia becomes very easy, the vibration increasing in intensity with its progress, and diminishing again as it is relieved.

If, however, there is any coexisting *effusion into the pleura*, the vibration will be proportionally feeble, or even become imperceptible if that increases, becoming thus in such cases a valuable means of diagnosis. So, too, in those cases of *general bronchitis*, when the symptoms are difficult to distinguish from those of pneumonia, the absence of vibration is conclusive. In respect to *children*, also, whose cries render auscultation so difficult, this means becomes of valuable assistance. It likewise often serves for the detection of *passive congestions* occurring in the course of fever and other general disease. In *phthisis*, the vibration also becomes much more intense when considerable masses of tubercles are deposited in the lung, and even a small amount of these suffices to produce an augmenta-

tion; and it has several times happened to the author to have the disease thus indicated to him, when all the ordinary signs were absent. As in its progress the tubercle becomes surrounded by denser tissue, the amount of vibration increases, while if excavations are formed, it becomes diminished. Although in *pleurisy, with effusion*, the vibration is *nil*, yet if false membranes are formed, and firm adhesions contracted between the lungs and thorax, it becomes very distinct. When the lung decreases in density, and air becomes interposed, the vibration is diminished (though less than in pleurisy with effusion), as in the case of emphysema; and in large excavations opposite the cavities we may find the vibration diminished, while at their condensed circumference it is increased. In four cases of pneumothorax, the vibration was absent.—*Rev. Méd. Chir.*, tom. iv., pp. 128–39, 195–204.

British and Foreign Medico-Chirurgical Review, Jan., 1849, *p.* 262.

33.—ON THE PATHOLOGY OF PHTHISIS PULMONALIS.

By Dr. W. H. Madden, Physician to the Torbay Infirmary, &c.

[Dr. Madden agrees with Lebert and Addison, that the usual seat of tubercle in the lungs, is in the intervesicular areolar tissue; sometimes, however, it is deposited in the air-cells, or capillary bronchi. He considers that the essential characteristic of tubercular deposit, consists in its peculiar corpuscles, which are distinguished from abnormal epithelial cells, pus-corpuscles, and the large transparent cancer cells, by being non-nucleated.]

Dr. Madden thinks that tubercular deposits are the uniform result of the operation of one special cause. We find a tubercular lymphatic gland, after having inflamed and suppurated, resisting all our attempts to heal it; we also find leech-bites producing incurable ulcerations over the skin of a malignant tumour. Again, a patient with tubercular disease of a joint, after it has been removed, dies of pulmonary consumption; and an analogous transference of the disease to some internal organ occurs, when a limb is removed for a carcinomatous tumour. Why should we deny a specific property in tubercular matter, any more than in cancer, and refuse to admit that their action is analogous? The argument, then, is, that "the fountain of the two diseases is alike a vitiation of the blood, and the phenomena presented by both are what they are, simply because the morbid elements have a certain determinate and altogether specific character; or, to speak with more correctness, because the vitiation on which they depend, is, in each, peculiar and distinct from all other morbid changes.

We have, then, "sufficient evidence to demonstrate that the particular substance, tubercle, is the result of abnormal nutrition: that it is the necessary consequence of a *peculiar* modification of those processes by which the living body is maintained in integrity, and

by which its several parts grow and increase. I say *peculiar*, because it is clear that *all* malnutrition does not give rise to the production of tubercle; otherwise every one affected with severe or prolonged dyspepsia would inevitably become tuberculous, which we know is not the case. It is a special disease and owns a special parentage."

Mr. Paget has endeavoured to shew, that each organic part of the healthy body, when first deposited, is an *excretion*, the removal of which fits the blood for the construction of other tissues. It appears to Dr. Madden, that this explains the very early occurrence of emaciation in cases of phthisis pulmonalis. For the separation of the *imperfect* matter, tubercle, from the blood, must of necessity render the remainder of that fluid more or less unfit for nutrition; it retains what it should have lost, or has parted with more than it should have given up; it is not healthy, and cannot act with healthy energy. These remarks apply especially to the gradual and insidious form of phthisis, not being the sequel of pre-existing disease. It is probably also an essential part of the process in cases preceded by pneumonia, or catarrhs, or a subsidence of exanthematous eruption, although the emaciation may be dependent on other causes also.

[Dr. Madden considers that tubercular disease in the lungs, and scrofulous diseases of the other parts, are manifestations of one and the same constitutional taint; and that they depend upon the circulation of a peculiar specific *materies morbi* in the blood. He says:]

"No one doubts now that cancer is the resultant of a pre-existing general contamination, or imagines that it can be produced when that contamination is not. And why have they arrived at this conclusion? Simply because of the thousands exposed to the exciting causes, a few, and a few only, become thus affected. Scirrhus of the lower lip appears to originate, sometimes, from the irritation caused by the pipe; but millions smoke every hour of the day, and retain their lips intact. Blows on the female breast are common enough, but the number of carcinomatous mammæ thus produced is vastly inferior.

"Precisely in the same way, fever, and emaciation, and prostration of strength, and absolute inanition, may occur, and do occur, in countless cases, where tubercle, from the beginning to the end, never makes its appearance. The marasmus in phthisis, extreme though it be, is surpassed by that which we observe from scirrhus of the stomach, and yet in the latter disease we never find tubercles. A man may be reduced to a mere skeleton, and die of absolute starvation, from total inability to digest his food, or from its unwholesome nature; and yet, though nutrition is here entirely suspended, the peculiar morbid product, of which we are speaking, is not evolved. While in another case, the body still remaining comparatively well nourished, and the digestion proceeding to all appearance with due regularity, the lungs or other organs contain it in abundance.

"Again, tubercle wherever found, presents the identically same characters. Take it from what part of the body you may, and when examined by the microscope, it will be found to consist of the same elements, the only difference being in the intermixture of the proper tissues of the part. This is inconceivable, if we suppose it to be nothing more than an imperfect form of the natural elements a half-generation, if I may so call it, of the healthy texture. It is quite conceivable that nerve-tubes may not be completely developed, and so fail in the exercise of their proper function; or that bone-cells may not elaborate a right secretion, and the structure which they build up be thus abnormally constructed. But it is hard to understand how the arrest, or the imperfection of these ordinary vital workings, should educe a structure totally different from the natural ones, and absolutely the same in two such diverse localities, unless there be some one special influence brought to bear on both alike.

"Yet again. Tubercle is often coetaneously deposited in many parts of the body, as is evidenced by its being found there in precisely the same stage of progress. Louis relates an interesting case of this kind, in which there were crude tubercles in the same stage of development, in the neck, the right axilla, the mesentery, the loins, the spleen, the brain, and the cerebellum: and he very justly remarks, 'I really do not understand how this fact can be accounted for, unless by admitting the agency of one and the same cause, acting at one and the same time upon all these parts.'"

In poison-diseases, we find a tendency in certain organs of the body to become affected, evidently from a natural tendency in the living body to get rid of injurious matters, whether introduced from without, or generated within. Of the former, the diarrhœa from errors in diet is an example; of the latter, the excretion of sugar by the urine, of urates and uric acid, of many medicinal agents, as ferrocyanide of potassium, sulphuret of potassium, sulphocyanide of potassium, iodine, various organic acids, arsenic, tartarised antimony, all of which have been found to be eliminated by the kidneys. MM. Danger and Flandin state, that arsenic escapes by the lungs, liver, and skin; and Mr. Herapath and Dr. Taylor have found it in the liver. The presence of certain organic substances has been detected in the urine, as the *amanita muscaria*, opium, belladonna, hemlock, &c., the effects of which are communicated to other animals, on the fluid being administered to them. Dr. Percy has shown, that in cases of poisoning by alcohol, that fluid may be found after death in the brain, liver, blood, bile, and urine. It would appear likely, then, that the local changes are caused either by the action of the morbid poison itself upon the parts to which it is derived, or by the undue activity of those parts, in their efforts to eliminate the offending matter. The effects of the poison of lepra, and of the exanthemata, on the skin, are examples of this; as are also the abdominal complications in typhus fever, arising from an over-excitement of the intestinal glandulæ, whose function is probably to get rid of putrescent matters, and the occurrence of

diarrhœa and inflammation, and ulceration, in scrofula and phthisis. These are all evidently analogous. The perspirations in consumption are probably like those of intermittent fever and rheumatism, attempts to get rid of the morbific matter from the system. Fatty liver arises from the excess of a normal ingredient; how is it produced? The livers of geese are made fatty in France, by shutting the animals up without food, in close cages, exposed to a graduated heat. Emaciation takes place, and the livers increase in size, and become fatty. And, in the non-phthisical cases of fatty liver, extreme wasting has been observed. Hence it is partially explained by the removal of adipose matter from other parts of the system. But emaciation is not always attended by fatty degeneration of the liver; hence another cause must be sought. When fatty liver occurs in persons not affected with tubercle, they have been the subjects of some blood disease, as cancer or pemphigus, or of extensive suppuration. Moreover, the abnormal presence of fat is an evidence of a process of degeneration; and, therefore, its existence in tubercle is one of the many proofs that this morbid product arises from malnutrition. The lesion under consideration can be brought under the same general law of analogy, in the following way:—"The specific poison acting at all parts, interferes with the healthy elaboration of every tissue. As a consequence of this, fat is found in excess, and where it does not naturally exist. This fat, absorbed into the blood in large quantities, is laid hold of by the hepatic cells, which have a natural affinity for it. It is taken up by these for the purpose of excretion, but the supply is greater than the demand, and it therefore accumulates in the new position. There is here a perfect analogy with that which we have supposed to occur in the intestinal glandulæ." The presence of tubercle in the lungs, Dr. Madden explains, by supposing the poison brought to them by the blood, to exercise a specific modifying influence on their nutrition; or (which he supposes a more satisfactory interpretation), that the general law is here followed, by which particular matters are attracted to, and retained in, certain organs and tissues. The localisation of the disease in the apex of the lungs is more difficult of explanation; but it is evidently analogous to the symmetrical distribution of other affections, as noticed by Dr. Budd, the peculiar action of chlorine acids on the heart, observed by Mr. Blake, or the action of strychnine on the *true spinal system*. And the greater frequency of tubercles in the left lung is analogous to what is observed in cancer, that the right breast and the lower lip are most commonly affected. These evidences of selection, like what we see in the effects of other poisons, are confirmatory of the doctrine of the poison-origin of phthisis; and other resemblances may be found in the period of latency, and in the exaltation of the activity of the poison, by depression of the vital energies, Another general law, applicable to phthisis in common with the results of other poisons, is the tendency of poisonous matters to accumulate, in considerable quantities, in the part to which they are determined. And it is remarkable, that parts organically damaged, either by mechanical injury, or antecedent inflammation, are specially liable to become

the seat of tuberculous deposition, or of the manifestation of any other poison, as small-pox.

[Our objects in the treatment of phthisis must be, Dr. Madden says, to neutralize the poison or procure its elimination, to restore the function of nutrition to a healthy state, to check undue local excitement, so apt to occur during the process of elimination, and to support the strength of the system. In acute phthisis, Dr. Madden considers mercury valuable; he combines it with salines, especially nitrate of potash, and gives tonics as soon as the symptoms allow. Dr. M. has great confidence in cod-liver oil.]

London Journal of Medicine, April, 1849, *p.* 328.

34.—ON THE USE OF COD-LIVER OIL IN PHTHISIS PULMONALIS.

By Dr. C. J. B. Williams, F.R S., Professor of Medicine in University College, London, &c.

[Dr. Williams has taken notes of two hundred and thirty-four cases of phthisis, (out of a much larger number,) in which he has prescribed cod-liver oil; and states that in two hundred and six of these cases, its use has been followed by unequivocal improvement, varying in degree from the mitigation of distressing symptoms up to an apparently complete restoration to health. Marked and lasting improvement has most frequently taken place, Dr. Williams tells us, in patients in the second stage of the disease, when softening of the tuberculous deposit was beginning to take place. He says:]

The effect of the cod-liver oil in most of these cases was very remarkable. Even in a few days, the cough was mitigated, the expectoration diminished in quantity and opacity; the night-sweats ceased; the pulse became slower and of better volume; and the appetite, flesh, and strength were gradually improved. The first change manifest in the physical signs was generally a diminution and gradual cessation of the crepitus; the breath-sound becoming drier and clearer; but the dulness, and tubular character of the breath and voice-sounds were much more persistent, and rarely exhibited a marked decrease, until after several weeks' use of this remedy, in conjunction with regular counter-irritation. The tubular sounds, in fact, frequently became louder at the first removal of the crepitus, which in phthisis as well as in pneumonia, tends to mask the signs of consolidation. In several instances, however, in which I have had the opportunity of examining the patients under treatment, at several successive intervals of a month or six weeks, the gradual removal of the consolidations has been unequivocally proved, by the restoration of clearer vesicular breath and stroke-sounds to the affected spots. In several cases, in which the disease has existed long, the restoration has never been perfect; even where

the health has been completely re-established, and all common symptoms of disease have entirely disappeared, there have remained perceptible inequalities in the breath and stroke-sounds; generally, with prolonged expiratory sound, which has more or less of a tubular note towards the root of the lung of the same side. These signs, if unaccompanied by decided dulness on percussion, I have learnt by the experience of many years, not to consider as exceptional against recovery, for they appear to be dependent on the puckering of the texture, often with pleural adhesions and old deposits in the bronchial glands, so frequently found after death at the summits and near the roots of the lungs of persons who have not for many years exhibited symptoms of any pectoral disease.

As might be anticipated, a large number of the phthisical patients for whom I have been consulted, have been in the first stage of the disease, in which the tubercles or deposits are in the solid state. In these cases also, I have largely used the cod-liver oil, and, so far as I have ascertained them, with not less satisfactory results.

The physical signs of improvement are precisely the same as those which take place tardily in the second stage after the removal of the humid rhonchi; and in truth, the treatment by the oil combined with counter-irritation, where successful, seems to bring back the lungs from the second stage, that of incipient softening, to the first stage, that of simple deposit, which is tardier in its changes of increase or diminution, and may remain long stationary without any obvious alteration. The same remark is applicable to the chronic products of inflammation of the lung, which, as is known to the profession, I consider to approximate in nature to the higher class of tuberculous deposits.

The most striking instance of the beneficial operation of cod-liver oil in phthisis, is to be found in cases in the third stage,—even those far advanced, where consumption has not only excavated the lungs, but is rapidly wasting the whole body, with copious purulent expectoration, hectic, night sweats, colliquative diarrhœa, and other elements of that destructive process by which, in a few weeks, the finest and fairest of the human family may be sunk to the grave. The power of staying the demon of destruction, sometimes displayed by the cod-liver oil is marvellous.

[After relating several cases of tuberculous lung-disease in an advanced stage, in which the use of the oil combined with counter-irritation gave rise to the most decided improvement, Dr. Williams says:]

The results above stated give to cod-liver oil, even as a tardative or palliative in phthisis, a rank far above any agent hitherto recommended, whether medicinal or regiminal. I have made extensive trials of several other medicines of reputed utility in this disease, and on a future occasion may lay before the profession the results of my experience, which prove some of these agents to be by no means inoperative or useless; and I still consider them to be

often salutary aids in the treatment of this formidable malady, but their utility and harmlessness fall so far short of those of the cod-liver-oil, that I regard them now chiefly as subsidiary means, and the more likely to be useful, in proportion as they facilitate the exhibition or continuance of this superior agent.

If the experience of the profession at large should accord with my own, and with that of those who have preceded me in recommending the cod-liver oil, our prognosis with regard to phthisis must undergo some modification. To what extent this modification may reach, cannot be determined, until such cases as those which I have recorded have been tested by years of time; but even now, when we repeatedly find forms and degrees of disease, that former experience had taught us to be utterly hopeless and speedily fatal, retarded, arrested, nay sometimes even removed and almost obliterated by various processes of restored health, we must pause ere we, in future, pass the terrible sentence of "no hope" on the consumptive invalid.

Mode of operation of cod-liver oil.—It seems scarcely necessary to discuss the question, whether the oil owes its efficacy to the iodine which it contains. The amount of this element is so minute as hardly to admit of quantitative measurement; and to ascribe virtue to such infinitesimal fractions, when ordinary doses have no corresponding activity, is to adopt the fanciful and mischievous speculations of the homœopathist, which cannot be too strongly deprecated by the scientific and conscientious practitioner. Several of the patients whose cases are cited, and many more of whom I have records, had taken iodine in various combinations before taking the oil, but without any effects approaching to those which ensued on the change of treatment. I am by no means incredulous of the salutary operation of iodine in some forms of tuberculous and scrofulous disease; indeed until I used the pure oil, I considered it to be the most useful remedy; but in the last two years, the oil has so far surpassed it and every other medicine in beneficial operation, that I am convinced that it acts by a virtue peculiar to itself.

A perusal of the foregoing cases, and of others on record, at once suggests that the cod-liver oil is a highly nutrient material; and it is commonly admitted by all practitioners who have used it, that it possesses, in a pre-eminent degree, the property of fattening those who take it for any length of time. But its nourishing influence extends beyond the mere deposition of fat in the adipose tissue. The muscular strength and activity are sensibly and sometimes rapidly increased under its use; whilst the improved colour of the cheeks and lips implies a filling of the vessels with more and better blood. Researches are wanted, to elucidate this subject more clearly; but the analysis of the blood in one case of phthisis which had been under treatment by the oil, showed a most remarkable increase of the animal principles of the blood, especially the albumen, which amounted to thirteen per cent., being nearly double its usual amount, whilst the fat was not materially augmented; and

the fibrin, which is generally high in phthisis, was reduced below the normal proportion. If these results should be confirmed by further observation, there will be no difficulty in understanding that the cod-liver oil should prove a nutrient to all the textures; although it may yet be a question, whether it does so by direct conversion into albumen or fibrin, or by preventing the waste of the albuminous principle by protecting it from the action of the oxygen absorbed in respiration.

But there is much reason to believe that the oil itself proves serviceable in supplying the fat molecules which appear to be essential to healthy nutrition, as forming the nucleoli of the primary cells or rudiments of tissues. The important part which fat thus performs in the process of nutrition, was first pointed out by Ascherson of Berlin; and that fat forms the central molecules of the elementary granules and cytoblasts of textures, is generally admitted, though few agree with Ascherson in his opinion that the fat forms the cells by its power of coagulating albumen around it. It seems to have been the opinion of Dr. Ascherson and of Dr. Hughes Bennett, who cites it, that in scrofulous diseases there is a want of this fat, and that the albumen derived from the food in digestion is liable to be precipitated in an unorganized condition (as tubercle, etc.) for the lack of it. But it is now well ascertained that scrofulous and tuberculous deposits, so far from being deficient in fatty particles, contain them in greater quantity than exists in the blood, or in its plasma in a healthy state. The explanation which I have given of the chief salutary action of the cod-liver oil, is not that it supplies fat where it is wanting, but that it supplies fat of a better kind, more fluid, more divisible, less prone to change, and more capable of being absorbed into, and of pervading, the structures of the body: thus affording a fine "molecular base" in the chyle, and therein, a material for a better plasma; and being conveyed into the blood distributed through capillaries and around deposits (in such quantity as to soften and dissolve the crystalline and irregularly concreted fat scattered through them), it renders them more amenable to the processes of reparation and absorption. Hence its beneficial operation is more marked in those stages of tuberculous disease in which the deposits abound in fat: that is, at the period of maturation and softening; although from the extent of mischief already done, both to the part and to the system, the benefit may not be so lasting as in the early stages of the disease.

One of the most remarkable effects of the cod-liver oil, in some cases of the second and third stage of phthisis, and in other forms of scrofulous disease with extensive suppuration, is the speedy removal of the sweats and other symptoms of hectic fever. This can hardly be ascribed to its direct nutrient powers; but I think that it is due to its influence in diminishing the unhealthy suppuration which is excited around the softening and excavated tubercles. If my views of the chemical nature of suppuration,—that it consists of a further oxydation of the exudation corpuscle,—be correct, then it is quite intelligible that the presence of so highly combustible a

material as oil must check this process of oxydation, and thus prevent the degeneration of the corpuscles into the aplastic state of pus globules. In fact, if it should prove to be correct, according to the analysis above quoted from Simon, that cod-liver oil removes the excess of fibrine in the blood of phthisical patients,—this also equally accords with my notion, founded on the inferences of Mulder and others, that the formation of fibrine is due to a process of oxydation of the albumen (forming a deutoxide of protein, according to Mulder); and that, by preventing this, the oil removes that tendency to cacoplastic inflammatory deposits which largely contribute to increase the consolidation of the lungs and other organs in phthisical subjects.

In making these surmises, I would not be supposed to adopt the idea of Liebig, that pulmonary consumption is the result of an excess of oxygen in the blood at large, consuming its materials, and those of the textures. Many of the symptoms, as well as the organic lesions of the disease, shew that there is a great deficiency in the process of respiration by which oxygen is supplied to the blood; and some of the most rapidly fatal cases, exhibiting speedy emaciation, are, throughout their course, in a condition bordering on asphyxia. Here is obviously a great want of oxygen in the blood,—nay, I believe the excess of fat in the liver, and in the tuberculous deposits, in these instances, to be caused by this very scanty supply of oxygen to the system. But although it is deficient in the system, enough oxygen comes into contact with the exudations from cavities in the lungs, and from the diseased bronchi in their vicinity, to effect the formation of much unhealthy pus; and it is the formation and reabsorption of this that seems to excite the hectic of phthisis, as well as to keep up much harassing local irritation. Now, I believe it to be by diminishing these exudations, and checking their further oxydation into pus, that cod-liver oil acts so promptly in reducing the hectic sweats and purulent expectoration of phthisis, which accelerate and aggravate its destructive progress.

The limits of this paper will allow me to notice but briefly one more point in regard to the action of cod-liver oil. Unlike other oils or fats, it rarely disorders the stomach or bowels, or disturbs the functions of the liver. If taken in any quantity, vegetable oils commonly purge, and animal oils turn rancid in the stomach, causing heartburn, bilious attacks, and even jaundice. On the contrary, cod-liver oil generally improves all the chylopoietic functions, and distinctly promotes the action of the liver; so that, as in several of the cases above related, the appetite and power of digestion are restored, and patients are enabled to take an amount and variety of food beyond what they were accustomed to, even in health. I cannot help thinking, that this peptic influence of the oil is due to its containing some biliary principle, which both favours its divisibility in the process of digestion, and promotes the natural secretions of the liver. The flow of bile, as indicated by the colour of the fæces, is generally free and uniform during its exhibition; and I must not omit to notice another fact, which I

believe to be connected with increased activity of the liver. I have in numerous instances remarked that the bulk of the liver (as determined by percussion) becomes augmented during its use; yet without tenderness or any other sign of disorder. In fact, this seems to be a kind of useful hypertrophy, induced by the oil augmenting the bulk and quantity of the hepatic cells, and supplying at once a material the more fitted for this secretion, because it has already within it some elements of biliary matter which served a similar purpose in the liver of the fish, and this at a lower temperature, and less favourable to the activity of the process. The observation of this influence of cod-liver oil has led me to use it in several cases of functional and structural disease of the liver, marked by defective or depraved secretion, and in some instances with most satisfactory results, especially in one of habitual formation of gall-stones, which had resisted all kinds of treatment, and was rapidly destroying the health: the use of the oil has entirely stopped the attacks, and has restored the patient to good health.

It appears probable, therefore, that although other oils might be equally influential in promoting nutrition, and in preventing and removing the cacoplastic and aplastic exudations of scrofulous subjects, the oil from the cod's liver, and perhaps those from the livers of other fish, have the advantage in point of digestibility, and in promoting the action of the digestive and biliary organs.

In all instances I have prescribed oil as *free from taste and smell as could be procured;* and so little difficulty has been experienced in its administration, that the proportion of cases in which it has decidedly disagreed has not amounted to four per cent.

The inoffensiveness of the oil implies the use of no process by which it can be deprived of its proper qualities. All that is required is, to obtain it *pure and fresh*, as it existed in the hepatic cells of the healthy fish when alive, without contamination by any process of putrefaction, roasting, boiling, or the like.

My usual mode of administering cod-liver oil, is in doses of a teaspoonful, gradually increased (if the stomach bear it) to a tablespoonful, floating on some pleasant-flavoured liquid, such as diluted orange wine, or the infus. aurantii comp., with a little tinct. and syr. aurantii. The vehicle should be suited to the taste and stomach of the patient; and much of our success in exhibiting the medicine will depend on our being able to keep the palate and stomach at peace with the oil. In numerous instances I have found that the addition of a little diluted nitric acid to the vehicle will make it more grateful to the palate, as well as serviceable to the stomach; and we may often combine with it other medicines which are not disagreeable, and thus fulfil the indications of palliating symptoms by their means. The fittest time for taking the oil is from one to two hours after the three first meals of the day. At this time the chyme is beginning to pass from the stomach into the duodenum; and it would appear that the oil passes quickly with it, for given at this time it causes none of those unpleasant eructations which are apt to occur when it is taken either before or

with food. There is nothing in the oil for the stomach to digest; and the less it is brought into contact with it, and the sooner it passes out of it, the better. When it mixes with bile and pancreatic juice in the duodenum, its division and absorption begin and proceed, as in the case of all fatty matters. Herein, too, we see a reason why the oil does not agree so well either with the palate or stomach, when mixed in an emulsion, or combined with liquor potassæ, as recommended by some practitioners.

In conclusion, I repeat, that further observations, and longer time, are requisite to determine with accuracy the extent to which this agent can control or remove tuberculous disease of the lung; but I would state it as the result of extensive experience, confirmed by a rational consideration of its mode of action, that the *pure fresh oil from the liver of the cod, is more beneficial in the treatment of pulmonary consumption than any agent, medicinal, dietetic, or regiminal, that has yet been employed.*

London Journal of Medicine, Jan. 1849, *p.* 1.

35.—ON THE CHEMISTRY OF COD-LIVER OIL.

By Dr. Jonathan Pereira.

[The following observations communicated to the Pharmaceutical Journal by Dr. Pereira, are principally from the researches of De Jongh:]

De Jongh made a very elaborate analysis of three kinds of cod-liver oil:—

1. *Pale cod-liver oil.*—Golden yellow; odour not disagreeable; not bitter, but leaving in the throat a somewhat acrid fishy taste; reacts feebly as an acid; sp. gr. 0·923 at 63° ·5 Fahr. Cold alcohol dissolves from 2·5 to 2·7 per cent. of the oil; hot alcohol from 3·5 to 4·5 per cent; in ether it is soluble in all proportions.

2. *Pale brown cod-liver oil.*—Colour, that of Malaga wine; odour not disagreeable; bitterish, leaving a slightly acrid fishy taste in the throat; reacts feebly as an acid; sp. gr. 0·924 at 63° ·5 Fahr. Cold alcohol dissolves from 2·8 to 3·2 per cent of oil; hot alcohol, from 6·5 to 6·8 per cent. Ether dissolves it in all proportions.

3. *Dark brown cod-liver oil.*—Dark brown, by transmitted light greenish, in thin layers transparent; odour, disagreeable, empyreumatic; taste, bitter and empyreumatic, leaving behind, in the fauces, an acrid sensation; reacts feebly as an acid; sp. gr. 0·929, at 63° ·5 Fahr. Cold alcohol dissolves from 5·9 to 6·9 per cent. of it; hot alcohol from 6·5 to 6·9 per cent. In ether it is soluble in all proportions.

De Jongh found the constituents of these oils to be *oleate* and *margarate of glycerine*, possessing the usual properties. But they also contained *butyric* and *acetic acids, the principal constituents of the bile* (bilifellinic acid, bilifulvin, and cholic acid), *some peculiar principles* (among which was the substance called *gaduin*), and not quite one per cent. of *salts*, containing iodine, chlorine, and traces of bromine. Moreover, he found that the oils contained free *phosphorus*.

The *pale* oil is richest in oleic acid and glycerine; the *brown* oil contains the largest amount of margaric, butyric, and acetic acids, and of the substances peculiar to cod-liver oil; and the *pale brown* oil is richest in iodine and saline matters.

The genuineness and purity are known partly by physical and partly by chemical tests.

The *physical characters* are colour, odour, and flavour. The finest oil is most devoid of colour, odour, and flavour. The oil in the cells of the fresh liver is nearly colourless, and the brownish colour possessed by the ordinary cod-oil used by curriers is due to colouring matters derived from the decomposing hepatic tissues and fluids, or from the action of air on the oil. Chemical analysis lends no support to the opinion, at one time entertained, that the brown oil was superior, as a therapeutical agent, to the pale oil. If patients could conquer their aversion to the brown oil, its free use, like that of other rancid and empyreumatic fats, would often disturb the digestive functions, and be attended with injurious effects.

Of the *chemical characters* which have been used to determine the genuineness of cod-liver oil, some have reference to the iodine, others to the gaduin, or to the bile constituents. Iodine, or iodide of potassium, added to train oil, to imitate cod-liver oil, may be readily detected by adding a solution of starch and a few drops of sulphuric acid, by which the blue iodide of starch is produced; or the suspected oil may be shaken with alcohol, which abstracts the iodine. But though we may thus readily prove that the suspected oil contains no artificially added iodine, the iodine which is naturally contained in, and more intimately combined with the oil, may be frequently recognized by another process. Marchand gives the following directions for detecting it; Saponify the oil with soda, carbonize the soap thus obtained, digest the coal in distilled water, add a drop of starch paste, and subject the mixture to the action of a voltaic battery, the positive pole being placed in contact with the starch paste, the negative pole with the solution. If iodine be present, the starch becomes blue. Marchand states that by this test, the iodine can be detected in the urine of of a patient soon after he has taken the oil. This, however, is certainly not always correct; for I submitted the urine of a young gentleman, who, for several weeks, had taken with great benefit a table-spoonful of cod-liver oil thrice daily, to the action of a galvanic battery of fifty pairs of plates for several hours, without obtaining the slightest evidence of the presence of iodine.

Sulphuric acid has been employed as a test for cod-liver oil; If a drop of concentrated sulphuric acid be added to fresh cod-liver oil, the latter assumes a fine violet colour, which soon passes into yellowish or brownish-red. Some samples produce at once the red colour, without the preliminary violet tint. It has been erroneously supposed by some persons, that this violet colour was due to the evolution of iodine, by the action of the acid on an alkaline iodide contained in the oil. If that were the case, the presence of a little

starch-paste would be sufficient to convert the violet into an intense blue colour; which is not the case. The colouration in fact depends on the action of the sulphuric acid on some one or more organic constituents of the oil, and the following facts lead me to infer that it is in part due to the presence in the oil of one of the constituents of the bile. In 1844, Pettenkofer pointed out a new test for bile. If to a liquid supposed to contain bile, about two-thirds of its volume of oil of vitriol be added, the liquid kept cool, a few drops of a solution of cane-sugar (four or five parts of water to one of sugar) be added, and the mixture shaken up, a violet red colour is produced, provided bile be present. This test succeeds very well, if we dissolve a little extract of ox-bile in water, and test the solution with sugar and oil of vitriol. The colour developed agrees with that produced by the addition of oil of vitriol to cod-liver oil, which De Jongh has shown, contains the essential constituents of the bile. Pettenkofer remarks, that the presence of a very great excess of chlorides will change the violet-red colour into a brownish-red. This fact is deserving of notice, because it may aid in accounting for the fact that some specimens of cod-liver oil strike a brownish-red, not a violet-red colour, with oil of vitriol.

Strecker confirms Platner's observation that both cholic and paracholic acids produce the same colour with sugar and oil of vitriol, as bile does; so that Pettenkofer's test doubtless acts on one or both of these acids. Now De Jongh has shown that cholic acid is contained in cod-liver oil, and we have, therefore, good reason for believing that it is in part by the action of oil of vitriol on this acid, that the violet-red colour is produced. For the development of this colour in bile it is necessary to use, besides oil of vitriol, a third agent (sugar). For cane-sugar we may substitute grape-sugar, starch, or any substance which can by the action of oil of vitriol be converted into grape-sugar. No such substance has hitherto been detected in cod-liver oil, and, therefore, it may be said the necessary ingredient to produce this characteristic re-action of oil of vitriol on cholic acid is wanting. Strecker has recently supplied the wanting link. In his valuable paper on ox-bile, he observes that acetic acid may be substituted for sugar. To the liquid supposed to contain bile, add a few drops of acetic acid, and then concentrated sulphuric acid, when a magnificent purple-red colour is developed. If the quantity of bile be small, it may be necessary to use heat. Now, as cod-liver oil contains acetic acid, we have the requisite agent to enable the oil of vitriol to act on the cholic acid, and the development of the purple or violet-red colour is then readily accounted for. I have already noticed the red colour produced by the action of oil of vitriol on gaduin (supposed by Berzelius to be derived from the bile). Here, then, is another source for the red colour caused by the action of sulphuric acid on cod-liver oil.

Sulphuric acid, then, is a test for liver oils. It does not distinguish one liver oil from another: neither does it distinguish good cod-liver oil from bad, for it produces its characteristic re-action

both with common brown cod-oil, and with the finest and palest qualities. But it serves to distinguish oil procured from the liver, from oil obtained from other parts of the animal.

London Journal of Medicine, March, 1849, *p.* 288.

36.—*Carbonic Acid a Cure for Phthisis.*—In the Annales de la Societié Medicale d'Emulation de Roulers there are two curious cases of phthisis pulmonalis cured under the following circumstances:—A man affected with the third stage of tuberculization, lived in a damp room in which for some time the grate was filled only with green wood, that disengaged carbonic acid in such a large quantity as to occasion very unpleasant effects with all the patient's family, such as headaches, loss even of sense occasionally, but not so to the patient himself. His family medical attendant, Dr. Tschikarewyski, had given him over, yet, to his astonishment, he observed his patient's symptoms lose, from day to day, their serious character, and as his respiration became more and more free the greater was the quantity of carbonic acid apparently disengaged in his apartment, so as to make his medical attendant consider them in the light of cause and effect. One thing was certain, that the patient's strength improved daily; the fever, night-sweats, and diarrhœa disappeared; the purulent expectoration became catarrhal; his appetite returned, as also his healthy sleep, and gradually all his functions were restored to perfect health in six months. Dr. T. had soon an opportunity of putting this chance lesson into practice with another patient in confirmed phthisis, who had frequent hæmoptysis, constant cough, with purulent expectoration, night-sweats, sanguineous diarrhœa, &c. The patient was placed in a damp room with a brazier of burning charcoal. Every day he was subjected for thirty or forty minutes to the vapour disengaged from it. Every time he respired this vapour his respiration became more free, and he experienced a very peculiar feeling of relief. In about four weeks from the commencement of the treatment, his strength had evidently improved, the symptoms lost their serious character, and finally, as in the preceding case, the symptoms of phthisis disappeared, not to return. In the notes which detail these cases, it is mentioned that another Russian physician, Dr. Sokslow, cured several well-marked cases of phthisis by the same treatment. Dr. S., however, remarked that the vapour of carbon completely failed in cases complicated with effusion into the pleura or pericardium; as likewise in those cases of phthisis with which there coexisted hepatization of the lung, or hypertrophy of the heart.—*Journal de Médecine.*

Dublin Medical Press, Jan. 31, 1849, *p.* 71.

37.—*On the Use of the Seeds of Phellandrium Aquaticum in Phthisis and Chronic Bronchitis.*—By M. Sandras.—In our Number for July we quoted M. Michea's testimony in favour of this substance; and since then M. Sandras has published the results of a careful investigation into its merits, conducted during eight years at the

Beaujon. He speaks of it in the highest terms of praise as a palliative of the most distressing symptoms of phthisis; and believes that occasionally it even exerts a curative agency, and, at all events, indefinitely postpones the progress of cases which furnish all the symptoms of incipient tubercle. He is, however, fully aware how deceptive these symptoms often are, and speaks with due caution on this point. The important agency of the seeds, however, in relieving suffering in undoubted and advanced cases of the disease seems certain; the days of the sufferer not only being considerably prolonged, but his path to the grave materially smoothened. The good effects generally manifest themselves in from a week to a fortnight, by a diminution of fever and diarrhœa, a return of appetite and sleep, less dyspnœa, and an easier cough, so that the patient often supposes himself nearly well. The strength is supported in this way for a considerably longer period than it otherwise would be; and when at last it finally gives way, the course of the disease then becomes very rapid. *Chronic bronchitis* is obviously and speedily modified advantageously by this medicine. It is especially indicated in that form which comes on in aged persons in cold damp weather, and persists until this changes; and in young lymphatic subjects, deficient in reactive power, it cuts short the the tedious cough left by colds. M. Sandras has found it of no avail in emphysema and nervous asthma, except inasmuch as these were connected with chronic bronchitis.—*L' Union Médicale*, No. 134.

British and Foreign Medico-Chirurgical Review, June, 1849, *p.* 279.

38.—*On the Asthma of Old People.*—By Dr. G. E. Day, Physician to the Western General Dispensary, &c.—[Pure nervous asthma is said to be hardly ever met with in old people; asthma in them, according to Dr. Day, depending either on organic change in the heart or lungs, or on impurity of the blood. The latter is thus described by Dr. Day:]

I proceed to the subject of *cachectic asthma*, an affection that seems to have been almost altogether overlooked by English practitioners, although of very common occurrence. The impurities contained in the blood seem here to be the exciting cause of the paroxysm. There is an attempt on the part of nature to make the bronchial mucous membrane eliminate the effete matter of the blood in the form of expectoration. Asthma is very often associated with a deficient or morbid action of the kidneys. I have seen so many cases of this form of asthma, that I cannot doubt the intimate connexion between the state of the respiration and the morbid condition of the kidney, and, for the sake of convenience, shall term this *urinous asthma*. The term has been already used by Schönlein, Canstatt, and other continental writers.

Urinous asthma seldom occurs before the sixtieth year, and is most common at and beyond the seventieth year. On examining a patient with this affection, we usually find a general suppression of the secretions, the skin being dry and rough, and the bowels acting

slightly about twice a week. The urine is scanty, rather turbid, of a reddish-brown colour, and so acrid as to produce a sensation of scalding in the urethra, and to give rise to frequent calls to make water. There is usually a feeling of dull deep-seated pain about the loins. The skin is the seat of intolerable itching and presents the appearance of prurigo, which, like the asthma, arises from the retention of the urinary constituents in the blood. The eyelids are red, and discharge an acrid humour, and ulcers often form on the lower extremities. The paroxysm of asthma usually occurs an hour or two before midnight, and lasts some hours, terminating most commonly in a copious expectoration of viscid and very salt mucus, which frequently has a strong urinous odour.

Another cachectic form of asthma is connected with the gouty diathesis. It sometimes comes on as early as the fiftieth year, in persons suffering from asthenic or anomalous gout. The premonitory symptoms are the same as those of a fit of regular gout. The patient is led by these symptoms to expect a fit of gout; but instead of this he is seized, usually about midnight or a little before, with a feeling of intense and terrible suffocation. The paroxysm lasts, with slight remissions, for some hours, and towards its close a considerable amount of thick mucus, frequently mixed with blood, is ejected. The fit is often succeeded by other efforts to depurate the blood by copious sweats, urinary sediments, &c. If they do not occur, a second paroxysm of asthma may be very shortly expected.

British and Foreign Medico-Chirurgical Review, April, 1849, *p.* 461.

39.—*Cases of Asthma successfully treated by Chloroform.*—By J. L. Beardsall, Esq., Worksop.—[The first case related is that of a clergyman, who had suffered from spasmodic asthma for six years.]

June 20th.—He has been suffering from difficulty of breathing for the last three weeks. From very slight exertion, and perhaps some nervous anxiety, the breathing was very much distressed; pulse slightly irregular, and about 120. A drachm of chloroform was administered on lint, covered with oiled silk. In less than two minutes, a very evident effect was produced; two or three very deep inspirations took place. The patient said "Don't disturb me," and he was suffered to remain quiet for five minutes, when he entered into conversation, saying "His breathing was much relieved." The pulse was now lowered to 84. It was thought advisable to exhibit half a drachm more of the chloroform; the effect was admirable; the patient reclined in the easiest attitude imaginable on a sofa, breathing most quietly, and saying "I can hear, but don't wish to talk." He remained quiet for several hours. The next morning there was most copious expectoration.

22nd.—I received the following note from him:—"I have continued to breathe most satisfactorily since I saw you, and was able to walk up two of the steepest hills between here and Chesterfield, to-day, without being distressed."

26th.—On Saturday evening, June 24th, there was difficulty of breathing, and the patient, residing four miles from me, had re-

course to his usual means to prevent an attack, which were so far successful that he got through his duties on Sunday. This morning, (the 26th), the difficulty of breathing having increased, he drove gently down to my house, where he again inhaled a drachm of chloroform. The effect upon the pulse was not so marked as on the former occasion; upon the breathing it was quite as satisfactory. After having inhaled for a short time, he exclaimed, "It's wonderful!" and began to breathe more quietly; he was not quite unconscious, but evidently nearly so. After the lapse of ten minutes, he inhaled half a drachm more of chloroform; this produced, for a short time, perfect unconsciousness, and he dosed for nearly an hour. Expectoration supervened the following morning, but not so copiously as in the first instance.

July 17th.—I have seen the patient to-day, and he is breathing most satisfactorily.

Case 2.—Martha K., thirty-four years of age, has been suffering from asthma as long as she can remember. Remedies of all kinds have been tried, but morphia only has of late afforded any relief. After much hesitation, and, in a great measure, in consequence of the results of the foregoing case, she was induced to inhale a drachm of chloroform.

Previously to the inhalation, the pulse was 120, small, and wiry, the breathing very much oppressed, and no expectoration. In less than two minutes after inhaling, there was slight convulsive effort in respiration when the chloroform was removed. Perfect quietude succeeded; the pulse became soft, and fell to 84. Very shortly, violent pain in the bowels was complained of. In a few minutes chloroform was again exhibited; the sedative effect was now more evident; the patient sat upright, quite unconscious, with the most placid expression of countenance; breathing natural; pulse, which, in the interval, had risen to above 100, fell to 76. She continued in this state for some time, when copious expectoration supervened.

June 25th.—Last night, she experienced slight difficulty of breathing on first lying down; but she has not for years got up so well as this morning, and the breathing is quite free at one o'clock P.M. The bowels moved very freely yesterday after inhalation.

July 12th.—For the last day or two, there has been slight difficulty of breathing, which has been relieved by smoking tobacco, one of her ordinary remedies. During the last night it has been much increased, and to-day, she again inhaled a drachm of chloroform, with quite as much benefit as before.

19th.—Up to this time there has been no return of asthma, nor has she taken morphia since the first inhalation.

Case 3.—Mr. H. P., twenty-one years of age, has been asthmatic for several years, which he attributes to confinement during his apprenticeship.

June 27th.—The patient was much excited at the thoughts of inhaling; the pulse 120; the breathing hurried and wheezing. A

drachm of chloroform was exhibited, when he very quickly complained much of suffocation. He was allowed to remain a few minutes, when he inhaled another drachm of chloroform; perfect quietness was the result, but no insensibility; the breathing changed its character from wheezing to rattling, and in the evening copious expectoration took place with considerable relief, but not to the same extent as in the other cases.

After the lapse of a week, he again inhaled a drachm of chloroform. The relief on this second inhalation was complete; insensibility for a very short time was produced, copious expectoration followed, and the patient was so much relieved, that he will gladly inhale again when his breathing becomes distressed.

Lancet, March 31, 1849, *p.* 338.

40.—*Use of Chloroform in Asthma.*—At the Westminster Medical Society, Nov. 27, 1847, Mr. GREENHALGH said that he had exhibited chloroform, by inhalation of forty minims from a sponge, to a gentleman labouring under attacks of spasmodic asthma, which were generally of some duration. The administration of the dose during a paroxysm almost immediately produced a profound sleep, which continued for two hours; after which the patient awoke, without any of the usual consequences of the attack. Mr. Chandler (Medical Gazette, 1847, p. 1106) relates the case of a lady who was the subject of distressing attacks of spasmodic asthma. In one of these, he resolved to give chloroform a trial, and accordingly poured half a drachm on a sponge, hollowed to fit the face and nostrils, and held it near the face. Excitement and incoherence were at first produced, with hysterical laughter; but, on applying the sponge close to the face, these were replaced by a state of muscular relaxation and anæsthesia, the respiration gradually becoming more regular. She awoke in about four hours from the state of semi-consciousness produced by the chloroform, much refreshed; and the following morning, was quite quiet, and had no return of spasm, and no ill effect from the inhalation. The vapour of ether had been previously tried in this case, not only without effect, but with much increase of suffering. M. Leriche, of Lyons (L'Union Médicale, 1 Janvier, 1848), administered chloroform to a young priest, who was suffering from asthma. Twenty drops were inhaled three or four times during the day, with the effect of removing the symptoms, which, with the exception of a slight return on the third day, had not re-appeared at the end of the week.

London Journal, April, 1849, *p.* 361.

ORGANS OF DIGESTION.

41.—ON THE PATHOLOGY OF APHTHA.

By Dr. W. H. Willshire, Physician to the Royal Infirmary for Children.

[After mentioning the observations of Grüby, Berg, and others, respecting the vegetable nature of the exudation which occurs in this disease, Dr. Willshire observes:]

In the so-called tubercles of acne punctata, in those of tinea favosa or porrigo lupinosa, in those of small-pox, in the exudations of the bronchial tubes in certain diseases, in those occurring in the intestines in typhoid fever, in diphtheritis, and numerous other instances, the development of vegetable fungoid growths has been distinctly proved to occur. Now, I cannot believe that in *thrush*, any more than in these diseases, that this development of a vegetable organism is the essence of the disease; on the contrary, it is an example of the working of the law I have been maintaining, that, where organic matter is forced to yield to new laws and modes of life, there may constantly be found the production of such low forms of organized existence. Now, nothing is more likely, let me tell you, than that the organic cells of the exudatory products, from diseased action of the vessels of the lining membrane of the mouth, forming the creamy layer, or curdy granules in muguet, or true thrush, loaded as they are, at the same time, with the remains of vegetable and animal material of the nutriment of the child, should pass into this peculiar state of decomposition, not unlike, in some respects, *fermentation*, and give rise, as the latter action does, to the production of the vegetable parasitic organism, and of which we may see analogous forms in the slime and tartar of the teeth, more especially of old persons, who are neglectful of cleanliness. I cannot, then, think, with Drs. Berg and Grüby, that the disease I am speaking of is merely, in its essence, a generation of a parasitic organism, or vegetable growth, dependent upon whose propagation, and nothing further, the local disturbance in the mouth depends; but rather, that the affection consists in, first, a general disturbance of the digestive functions, next, in a diseased action of the vessels of the mucous membrane, of the oral cavity, which results in *exudation*, or a peculiar deposit, which, becoming mixed with the organic matter of the nutriment of the infant, retained amidst its cells and crevices, passes into a state of *decomposition*, an effect of which is, in part, the formation, by these cells, of a new form of life—the minute vegetable found.

I must yet detain you upon a few points connected with this matter. It may be asked, how far the *continuance* and *progress* of *thrush*—though differing in its *origin* from that assumed by some continental pathologists—may yet be dependent upon or influenced by a progressive re-production of this vegetable growth, merely

from its own sporules, the parent plants once having been generated, no matter how; the primary disease giving birth, as it were, to another one, which then acts by laws of its own. It must be known to many of you, that several German experimenters are said to have inoculated tritons, salamanders, frogs, &c., with the germinating sporules of low organized formations, and which in the result soon killed the animals, or caused their limbs to separate from the trunk through their devastating ravages; also, that several diseases, like the *muscardine* in the silkworm, are rapidly propagated, apparently in like manner, from one creature to the other. Now, Dr. Berg affirms, to the fullest extent, the contagious nature of our present malady, believing that thrush may be conveyed from one patient to another by sporules, or fragments of sporules, even in their dry state, floating in the air; and that, still more frequently, it is propagated by the bottles from which children with the thrush have been fed, or by the nipple, especially where, as in some of the children's hospitals of the continent, two infants are suckled by one nurse.

Further, Dr. Berg, by the direct experiment of applying aphthous crusts to the mucous membrane of the mouths of perfectly healthy children, produced rapidly, in every instance, analogous disease.

Again, as bearing upon the point, I may read a quotation to you from one of the most able and successful works our medical press has for many years produced—I allude to Dr. Pereira's "Materia Medica," &c. On turning to the subject of "Waters containing Organic Matters," you will meet with the following passage:—"Now, it is by no means improbable that diseases may be induced in a somewhat similar way in the human subject by the use of water containing the shreds or filaments of cryptogamic plants. This suspicion is strengthened by the case related by Dr. Farre (Microscopic Journal, vol. ii. p. 189) of a woman who passed by the bowels, shreds of false membrane, but consisting entirely of confervoid filaments, probably belonging to the genus oscillatoria. The patient drank the ordinary water which supplies London, and it is not improbable, therefore, she may in this way have imbibed the reproductive sporules."

Medical Times, Feb. 17, 1849, *p.* 317.

42.—*On the Treatment of Obstinate Dyspeptic Symptoms.*—By Mr. Bevan.—[Referring to an obstinate case of dyspepsia, respecting which advice had been asked, Mr. Bevan says:]

From the train of symptoms described, I perceive that this case is one such as has often come before me. Indeed, I have just completed the successful treatment of the case of a gentleman who has laboured under a disordered digestion and general broken constitution for a considerable time past, but had become much worse during the last twelve months, accompanied with general pains. Under the course which has been adopted he has been perfectly restored to health. It is as follows:—Pulv. jalapæ compositæ unciam; calomelanos, grana decem, cum melle rosarum electuarium

fiend: cyathum minimum sumend. alteris diebus mane horis duobis ante jentaculum. After which, to drink one tumbler of pure cold water, followed up, if possible, by exercise. By this course, most probably the secretion of the liver will be brought to its natural colour and consistence. In three or four days then to desist from the medicines. Each night the body to be fomented with warm water before stepping into bed. Food to be taken as cool into the stomach as can be, and all fermented liquors to be relinquished, generally speaking, unless prostration of strength occur, and then merely to resuscitate. By this plan the patient will be enabled to undertake the second process—viz., the vapour bath, for half an hour each day, or as he can be bear it, followed by the cold dash or bath, and accompanied by hand-rubbing. If the vapour bath cannot be had, a sitting bath for one hour, with frictions, beginning at the temperature of 80°. He should also bring himself gradually to drink as much pure cold water in the twenty-four hours as the stomach can reasonably bear; four or five tumblers will be sufficient. By this process the skin will probably be brought to its original healthy condition, a most essential ingredient in the means of restoring the digestive function. In all cases of this kind, the morbid condition of the liver is the immediate and prominent cause of this complaint, being, however, first produced by the deranged condition and function of the skin, which is a true respiratory organ, performing (as has been well proved) the same change on the blood as the lungs, separating the carbon and hydrogen, but which in this case, as in others, is most probably harsh and dry, or oily, clammy, and profuse, the necessary consequence of its deranged action: its function is therefore damaged, if not entirely gone, and which must be thoroughly remedied before any permanent salutary change in digestion can accrue.

[For the same case, another gentleman recommended small doses of tincture of nux vomica.]

Lancet, Dec. 23, 1848, *p.p.* 694 *and* 704.

43.—*On the Use of Coffee in Infantile Cholera.*—By Dr. Pickford.—Dr. Pickford states, that from the great importance which now attaches to the treatment of cholera, he feels it to be incumbent upon him to impart to others the experience which recent opportunities have afforded him of the effects of *coffee* in the cholera of infants.

In the case of an infant at the breast, to which he was called late, to whom the usual remedies had been administered unavailingly for four days, the exhibition of coffee was attended with complete success. The incessant vomiting and purging had produced extreme emaciation; the abdomen was distended; the pulse was frequent and small; there was great restlessness, and sleeping with the eyes half opened; convulsive motions of the eyes when awake. Carbonate of ammonia, with nourishing diet, and external stimulants, having been fruitlessly exhibited, Dr. Pickford determined to have recourse to coffee, which he knew to have been recommended

as a stimulating tonic, by Dr. Dewees. He began with a small dose, a scruple, infused in two ounces of water, with one ounce of syrup, giving a large spoonful every hour. The effect was surprising; the vomiting was arrested; the evacuations became more consistent, improved in colour, and less frequent. The amendment progressed so rapidly, that by the tenth day the child was discharged as cured.

The effects were equally good in a little girl, fourteen weeks old, in whom the vomiting was not so severe, but the diarrhœa was quite as copious. In this case also the coffee was given, after other means had been tried, and the patient greatly reduced.

Dr Pickford has since used this remedy in nine children of different ages, from four weeks to two years and a half. The doses have varied from half a scruple to two scruples daily. He has also administered it to children labouring under premonitory symptoms, especially where the evacuations have been very light coloured. In some cases a single dose of calomel has preceded its employment, The effect was always favourable, except in one case to which he was called too late, when the child was already sinking.

He has not had any occasion to try the value of coffee in the diarrhœa of adults, having found calomel and opium of sufficient efficacy.

The benefit of coffee, especially in bilious diarrhœa, has been extolled by Lauzow and Chultze (Richter's Arzneimittellehre, vol. 1). West, in 1813, found a combination of coffee and opium very useful in the epidemic of that year. Coffee has long been employed by the common people as a remedy (in Germany, we suppose), after excessive indulgence in spirit drinking. It is known to have the property of promoting digestion, and the action of the bowels.

The purgative action of burnt coffee is attributed by Dr. Pickford to its tonic exciting properties. Like some other substances, in small doses it is capable of restraining diarrhœa, while in large doses it acts as a cathartic. The physiological explanation of this opposite effect of the same remedy is probably to be found in the condition of the motor nerves, which, being weakened, are by its moderate stimulus restored to their normal state of excitement, and thereby diarrhœa depending on their paralysis is cured. In this way, also, is explained its aperient action in larger doses on adults, by its over-stimulating these nerves, and so promoting increased movement of the intestines.

This simple domestic remedy is so readily available that its efficacy deserves to be tried, and, if confirmed, made more extensively known. Our own experience of its utility in a case of vomiting and purging which has recently presented itself to us fully bears out the author's encomiums. It is not, however safe to draw conclusions from a single instance.—*Henle's Zeitschrift*, vol. vii. part 1.

Medical Gazette, Nov. 24, 1848, *p.* 908.

44.—*On the Use of Nux Vomica in Diarrhœa from Exhaustion.*—By Dr. Nevins, Liverpool.—Dr. N. mentioned the benefit derived from the employment of nux vomica in the treatment of the diarrhœa from exhaustion, chiefly observed in pauper patients, and especially children. In these cases he had repeatedly found no benefit from astringents and ordinary tonics, but the patients had rapidly improved under the use of the following prescription:—Alcoholic extract of nux vomica (not officinal, but prepared by most wholesale druggists), gr. ss.; rhubarb, gr. ss.; saccharated carbonate of iron, gr. j.; blue pill, gr. ss.; opium, gr. $\frac{1}{8}$; made into a pill, and taken three times daily. In many cases he omitted the opium altogether.

He attributed the benefit to the influence of the nux vomica, which, by stimulating the nervous energy of the bowels, enabled the lacteals to absorb the nutriment from the food, and the large intestines to retain the fæces; whilst, at the same time, the iron acted as a permanent tonic; and the very small doses of rhubarb and blue pill improved the character of the secretions, without acting as an aperient. Improvement was generally perceptible in a few days, and he seldom had occasion to continue the prescription more than a fortnight.

Medical Gazette, Dec. 15, 1848, p. 1035.

45.—*On Hæmatemesis.*—By Dr. Robert Dick.—Hæmatemesis, or vomiting of blood, may proceed from one or more of a variety of causes, some of these of much graver import than others. We shall enumerate some of them, and that in the order of their frequency. 1st. Vicarious, or antagonistic hæmatemesis, of which the best illustration is that owing to suppressed or too scanty catamenia. Of this, there are few practitioners but have met with cases. But, occasionally, hæmatemesis of this antagonistic kind seems to originate in the morbid plethora, from which hæmorrhoids and hæmorrhoidal discharges arise, and of which these are the more usual safety-valves, if I may use that phrase. Also, hæmatemesis seems sometimes to be vicarious of hæmorrhoids and hæmorrhoidal discharges, already periodic, but which some casualty has, for the time, suppressed.

It is difficult to determine whether mechanical or organic causes are the next most frequent inducers of hæmatemesis, as (for examples of the former) obstruction in the portal circulation, or disease of the heart, by either of which the ventricular venous system may become loaded, so as to require to relieve itself by exudation or rupture; or (for example of the second) ulcerous or cancerous disorganization of the mucous and muscular tissues of the stomach, whereby veins and arteries are opened; with, of course, constant hæmorrhage. Aneurismal affections of the ventricular vessels come also under the latter head.

Dyscrasic hæmatemesis comes next in order. It appears to me doubtful whether, in any case, this form should be distinguished from the organic; for although, unquestionably, there are certain

diatheses or diseases (as the scorbutic) in which hæmorrhage is extremely apt to occur, or rather, is extremely difficult to prevent, from both cutaneous and mucous surfaces, yet I suspect that in many or all of these cases there is disorganization more or less complete, more or less palpable, of the mucous or cutaneous surface from which the hæmorrhage proceeds; thus bringing the discharge, in part at least, under the head of organic. Therefore, I apprehend, that in all hæmatemesis other than that of mechanical origin, there will be perceived, either with ordinary vision, or by the microscope, morbid changes, more or less extensive and complete, in the mucous membrane of the stomach.

The blood vomited affords some indications. If florid and liquid, it is probably arterial; if dark, venous of course. If clotted and dark, and if the patient had no perception of that gush of warm fluid which we formerly adverted to, the hæmorrhage has probably been gradual, and is of a passive kind. If the discharge consists of what is called grumous blood, or resembles coffee-grounds, capillary exudation is indicated, and the prognosis is bad; for from causes not yet well understood, hæmatemesis of this kind seldom occurs, except as a precursor of death. If the hæmorrhage is intermixed with bile and pus; more especially if, as has happened, a gall-stone has come up at the same time, then it is evident that the discharge is hepatic.

The treatment of hæmatemesis is in some degree modified by the causes of it. When the hæmorrhage is due to suppressed or inefficient catamenia, or to suppressed hæmorrhoids, and occurs in plethoric subjects, it may be proper, not only to use the local means presently to be enumerated, and to place the lower extremities in hot water, but even to phlebotomize the arm or foot. In addition to the above means, we must, in the case of a woman with torpid uterus, foment the pudenda, and administer emmenagogues. With a man used to hæmorrhoids and hæmorrhoidal discharges, but in whom they are suppressed or scanty, a hot semicupium and stimulant suppositories, or injections, should be had recourse to. Internal styptics should simultaneously be administered, such as simple cold or iced water, or ice itself, (if procurable); or an alum whey, consisting of a pound of that fluid, in which two drachms of alum are dissolved, and of which a small teacupful may be taken. Rose water may be substituted for the whey or oxymel. A favourite astringent pill in France is one composed of three or four grains of alum, two or three of sang-dragon (calamus draco) and conserve of roses, of which from one to six or eight may be taken in twelve or sixteen hours. Some recommend, also, the application of bladders containing ice or cold water, externally, to the epigastrium. Such means will usually speedily succeed in hæmatemesis of this indirect and simple kind. The recurrence of it must of course be prevented by anticipating its causes—namely, by re-establishing the catamenia and the hæmorrhoidal discharge, or else by reducing systemic plethora, obviating the necessity for either hæmorrhoids or hæmatemesis. *Lancet, Jan.* 20, 1849, *p.* 64.

46.—*On Functional Disease of the Liver, associated with Uterine Derangement.*—By Dr. Butler Lane.—[Dr. Lane thinks that the relations between the liver and the uterus, both in health and disease, have not been sufficiently noticed. He says:]

The research and experience of three years enable me to advance the following propositions:—

1. In a state of health an anatomical and physiological relationship exists in the female between the liver and the uterus.

2. The relationship in question is apt to be disturbed in many forms of disorder and disease, primarily implicating either organ individually.

3. The disturbance in question, though varying much in nature and degree, assumes certain definite aspects, the recognition of which serves much to direct and facilitate our therapeutic appliances.

In a great majority of instances it will be found that menstruation rarely occurs without some concomitant alvine derangement. The bowels will vary from their usual state of action, becoming either confined or relaxed relatively to their ordinary condition. Now we know that bile may be considered as the natural stimulus to healthy alvine action; if, therefore, that secretion be increased or diminished, so in proportion will there consequently be increase or diminution in the action of the bowels. Assuming, therefore, the existence of an hepatico-uterine relation, it will follow that when the periodical excitement of the uterus takes place, occasioning menstruation, then the liver will manifest some sympathetic influence. If the action should be simply derivative, the biliary secretion will be diminished, and the natural catharsis will consequently be lessened. But if a greater degree of excitement attend the menstrual period, the liver may even be supposed to undergo a sympathetic degree of excitement or erethism, and its secretion being thereby augmented, instead of being diminished, increased catharsis will consequently result. It is also to be remembered that there is an immediate connection between the veins of the uterus and the portal system, which must exert some influence. The uterine blood, however, when subjected to its own special secretive action, is purified by that very process, and consequently it does not in that respect need the hepatic elaboration; it is unlike the intestinal blood, which is impoverished by furnishing pabulum for the secretions, and deteriorated by the admixture of foreign matter imbibed by venous absorption.

In some instances, certainly, intestinal irritation will cause uterine excitement, and on the other hand, I can conceive that uterine excitement may implicate the intestinal canal; but I cannot understand how uterine excitement is, as a general rule, to diminish the normal irritability of the intestines, and the cathartic action thereon contingent, unless it be though the medium of hepatic influence. It seems at first sight rather irrational to consider the secretion rom the portal venous system as antagonised by that from the ar-

terial uterine system; but we must remember that, during the menstrual period, a complete temporary revolution takes place in the female constitution, which, indeed, is often very perceptible at its outset. In such cases languor and oppression are experienced, the pulse is accelerated, the countenance becomes sallow and almost jaundiced, a peculiar faint odour emanates with the breath and from the cutaneous surface, and only on the establishment of the uterine flux do these symptoms subside. I believe that at the approach of the uterine excitement the function of the liver is performed imperfectly, the process of depuration therein effected is incomplete, and the supplementary respiratory action, though often much excited, is inadequate to the task. Thus the arterial blood circulating through the system is to some extent impure; this very impurity is the essence of the peculiar constitutional state that exists, and it is by means of the uterine secretion that the blood undergoes the necessary process of filtration and separation, by which the system becomes relieved. Chlorosis has often been regarded as an hepatic affection, but it is only by adopting the above views that the assumption admits of explanation.

Medical Gazette, Dec. 29, 1848, *p.* 1099.

47.—*On the Depurative Action of the Bile.*—By Dr. Fauconneau-Dufresne.—[Speaking of the function of the liver as auxiliary and vicarious to that of the lungs, the author observes:]

In intra-uterine life, the bile, in the absence of respiration, purifies the blood by the removal of carbon. The meconium of the fœtus is the carbon of the blood, extracted in a liquid form, which, after birth will be eliminated in the gaseous form. If it is objected that the biliary secretion in the fœtus is not manifested until towards the fourth month, it may be answered that, until this period, the liver is of a very considerable proportionate size, and that it retains, for the purpose of its augmentation, materials which, later, will serve for the secretion of this fluid. This function of the bile is not so applicable in extra-uterine life. In the different vertebrata, the development of the liver is generally found to be inversely to that of the lungs. This remarkable antagonism exists especially in fish, which respire by the branchiæ. In certain species of serpents, the bile is very abundant, as if to compensate for their imperfect respiration.

MM. Sandras and Bouchardat (Annuaire de Thèrapeut., 1845) have established that, whatever be the nature of the aliment taken by an animal in good health, the quantity of fatty matters found in the blood, is nearly the same, which gives rise to the supposition that they are eliminated as fast as they are introduced into it. According to the same authors, the fatty bodies which the liver separates from the blood, have a constant point of fusion, and consist principally of cholesterine, which the blood of carnivora always contains, and of the margaric and oleic acids united with soda. The fatty bodies of the blood are subjected to a series of successive oxidations, by which the solubility of the sodaic compound, whichth ey

form, is indefinitely increased. Cholesterine may result from the alteration of the fatty bodies; for it is a neutral fat, the point of fusion of which is very high, and which, not having been burned in the blood, must necessarily become eliminated from the economy.

British and Foreign Medico-Chirurgical Review, Jan., 1849, *p.* 124.

48.—*On the Use of the Pancreatic Juice.*—By Dr. J. C. Hall, East Retford.—[Dr. Hall says that great light has been thrown upon the function of the pancreas by the experiments of Dr. Charles Bernard. He says:]

There does appear little or no doubt but that the proper office of the pancreatic fluid is the absorption of fatty matters, and the formation of chyle. He found, "at a temperature of 38° to 40° (100° to 102° F.), on mixing the pancreatic juice with oil, butter, or grease, that it was observed that the fatty particles became completely emulsed *(se trouve instantément émulsionnée)*, the liquid being of a creamy consistence and white colour, resembling the chyle; nor are these fatty matters simply divided or emulsed *(émulsionnée)*, they have evidently undergone some peculiar transformation, a property possessed by the pancreatic juice only." M. Bernard has tried the action of the bile, the saliva, the gastric juice, the serum of the blood, liquid from the arachnoid *(céphalo-rachidien)*, on fatty matters, and not one of these liquids has had any effect on grease; and, if a morbid or altered juice be employed, it soon separates from the fatty substances, without exerting any marked influence upon them. These experiments, exhibited before M. Magendie and M. Andral, are no doubt altogether to be depended on.

The results of M. C. Bernard's experiments on healthy living animals may be briefly given thus:—If a dog be killed during a full digestion, oil will be found unchanged in its nature until it comes into contact with the pancreatic fluid. He has also proved the very important fact, that if the pancreatic ducts be tied, no change takes place. In a rabbit, the pancreatic canal *(canal pancréatique)* is of a peculiar formation, opening low down in the intestinal tube (35 centimetres [13·77 inches] under the choledochus). This is the discovery (perhaps I ought not exactly to term it a discovery) of M. Bernard, for experiments to shew that the chyle was rendered limpid by ligature of the choledochus, were made many years ago by Sir B. C. Brodie. The fact has since been ascertained, however, that in the cat the pancreatic duct anastomoses with the choledochus before opening into the intestine, and it is possible that this distinguished physiologist, then unaware of the circumstance, included both vessels in the ligature. With regard to the cat it is also exceedingly interesting, and goes to remove the error so long entertained by physiologists, that the bile is the fluid by which fatty matters are acted upon—a property clearly proved by M. Bernard to belong *most exclusively* to the pancreatic juice, which must, therefore, now be regarded as the true agent by which fatty bodies are digested.

When fat is introduced into the stomach of the rabbit, the contact of the gastric juice produces no alteration, nor is it in any degree changed in its passage along the intestinal canal, until it arrives at that portion where it is brought into immediate contact with the gastric juice; and it is exactly at the mouth of the pancreatic canal *(l'abouchement du canal du pancréas)* that the lacteals convey chyle of a white colour: *higher up they contain only chyle of a transparent hue (chyle encore transparent.)*

No one can read these details, and not arrive at the same conclusion as Dr. Charles Bernard, that the pancreatic juice, hitherto considered as the abdominal saliva, the use of which was to soften the food, is in reality charged with the important office in the exhibition of the cod-liver oil, already alluded to. We know, also, that the best time to give it to the patient, is one or two hours after breakfast, after dinner, and after tea. If given at these times it does not occasion those disagreeable eructations which are apt to occur when it is taken either with, or immediately before, food; by taking it at this time we can now see how these eructations are avoided by the newly-discovered and peculiar action of the pancreatic juice. In practice, I have found it very important to be thus particular in fixing the time at which the cod-liver oil should be taken, more particularly in the diseases of children; and so far as my present experience enables me to speak, in no disease is cod-liver oil more valuable than in scrofula mesenterica.

Medical Gazette, April 13, 1849, *p.* 640.

URINARY ORGANS.

49.—ON HÆMATURIA.

By Dr. R. B. Todd, F.R.S., Physician to King's College Hospital, &c.

[The following observations are from an interesting clinical lecture by Dr. Todd, on some cases of hæmaturia. The most important point of diagnosis, Dr. T. observes, is to determine whether the blood is derived from the kidneys or the bladder. The circumstances which shew the blood to be derived from the kidneys are its uniform diffusion in the urine, (except when it has coagulated in the ureters), the presence of renal epithelium, as observed by the microscope, and pain, and other special symptoms of renal affection. In the first case related by Dr. Todd, the hemorrhage, which was renal, was excited in an unusual manner. The patient was a man with acute rheumatism and pericarditis; when he was admitted, the urine contained lithates in large quantity, and *blood*, and the bleeding continued for many days, until a large quantity of blood had been lost,—indeed it was going on at the time the lecture was delivered. Dr. Todd observes:]

Now what can be the cause of the hemorrhage in this instance? You may remember that I told you in my last clinical lecture, that it was common to find, in the course of certain diseases dependent on the presence of morbid matters in the blood, more or less irritation of the glands through which the morbid matter is eliminated. The glands especially concerned in the elimination of the poison of rheumatic fever, are the kidneys, and, in the present case, the irritation has been extreme. As a result of it, a great afflux of blood to these organs takes place; and if this engorgement attains a certain intensity, the delicate vessels of the Malpighian bodies give way, and the blood escapes. Now we have many cases to prove that hæmaturia may be caused by the irritation of the kidneys, excited by a substance which can reach the gland only through the blood. It is well known that turpentine and cantharides will both irritate the kidneys when administered in large doses. Cantharides in small doses excites the kidneys, and increases the secretion of the urine, but the excessive excitement produced by large doses diminishes the flow of urine, the state of engorgement being too great to be compatible with the healthy functions of the organ; finally the vessels yield, and hemorrhage is the result. The effect of turpentine is the same. And when you examine the kidneys of patients who have died after taking turpentine, as I had the opportunity of doing not long ago by the kindness of Dr. Johnson, you find many of the uriniferous tubes, and of the Malpighian capsules, full of blood; thus clearly denoting the precise source of the hemorrhage. In the present case, lithic acid was the principal irritating agent, as was shewn by the great abundance of lithates with which the urine was loaded. Sometimes oxalate of lime is formed and is discharged with the lithates, as in the present case. Now oxalate of lime is a very irritating substance; and thus in the present case there were probably two sources of irritation—the lithic acid and the oxalate of lime.

Treatment.—The principal indication in a case of this sort is to promote active elimination by other emunctories besides the kidneys, and so to relieve these organs as much as possible. Thus it will be necessary to excite the action of the skin by diaphoretics; of the bowels by purgatives. Counter-irritation over the region of the kidneys may be also advantageously employed, or, if the patient is robust, a small cupping may be of use; but the strength of the patient, and the amount of the hemorrhage should always be carefully taken into account prior to the application of this remedy. In this case, we should not be justified in taking away blood, the patient being already greatly anæmiated. Sometimes, however, the rapid and sudden abstraction of a small quantity of blood will put a stop to the hemorrhage at once. And this acts, perhaps, on the principle of revulsion, or of counter-irritation. If you have recourse to counter-irritants, you must be careful to employ mustard, and to avoid turpentine and cantharides, the active principles of which, even when they are applied to the skin, are readily absorbed, and may exercise a pernicious influence on the urinary organs.

[Dr. Todd remarks *en passant*, that the loss of blood did not prevent the accession of severe pericarditis, which in fact, as well as the articular symptoms, was much less tractable than usual. In the second case, one of inflammatory renal dropsy, the urine was at first very scanty, and contained albumen, blood corpuscles, fibrinous casts, and renal epithelia.]

The state of the kidneys in this case was probably owing to exposure to cold, but the attack cannot be traced to any particular instance of exposure. Cold, however, is the most common cause of this state of kidney, particularly if accompanied with a sudden suppression of sweat. Under these circumstances, some morbid material is retained in undue quantity in the blood, which irritates those organs through which it is eliminated, in a manner similar to that in which the morbid matter or poison of rheumatic fever is eliminated. In this way an irritated and inflamed state of the kidney is induced, which sometimes terminates in destructive disease of the organ.

The indications for treatment afforded by a case of this kind are very obvious; they are to restore the defective action of the skin—to soothe and relieve the irritation of the kidney—and to promote the elimination of water from the system.

We have in the hot air bath a very valuable and ready means of exciting the action of the skin: this was consequently used with our patient from the beginning, and with the effect of promoting sweating while he was in the bath, as well as afterwards. After the hot-air bath has been frequently used, it produces a state of great debility; and this constitutes the chief difficulty in continuing it, in order to gain the greatest benefit from it. In this instance I carried into effect the Russian practice of dashing the patient with cold water immediately he came out of the bath. The effect in this, as in other cases in which I have tried the plan, was certainly to give the patient a greater tolerance of the remedy, and, at the same time, by the reaction which succeeded the cold dash, to cause more active sweating on his return to bed.

With the hope of relieving the active congestion of the kidneys, our patient was cupped over the loins, and several ounces of blood were taken away. I cannot say that he derived any benefit from this; and, I must confess that in the treatment of similar cases I have been more frequently disappointed than satisfied by topical bloodletting when the congestion of the kidney was active. I suspect that as long as the morbid matter is undergoing elimination through the kidney, and keeping up irritation of the gland, local bloodletting does little or no good. If a particle of dust gets into the eye, it excites conjunctival inflammation,—you may leech the eye, day after day, until your patient is blanched,—yet active congestion of the conjunctiva will continue; but remove the particle of dust, and the congestion will quickly subside. So with the kidney,—you will do more to relieve the active congestion of which it is the seat, by opening new channels for the elimination of morbid matter—restoring and promoting the action of the skin, and increasing

that of the bowels—than by the withdrawal of blood. But when these evacuations have been sometime in action, and the congestion of the kidney has assumed a passive character, then the removal of blood by cupping, or by leeching, will often succeed in relieving the congestion.

The third indication, that of promoting the elimination of water from the system, is in some degree fulfilled by the sweating process; but the use of drastic and hydragogue purgatives supplies us with a very efficient means of getting away a considerable quantity of fluid through the intestinal canal. For the generality of cases you will find that which we employed in this case the most efficient remedy of this class—namely, the compound powder of jalap: it is a safe and sufficiently active medicine. In other instances, elaterium may be resorted to, but this is a much more violent remedy, and likewise very uncertain, owing to the difficulty of procuring it in a state of purity.

After the inflammatory condition of the kidney had been subdued by the means above detailed, and that the organ began to resume its secreting activity, as shown by an increase in the quantity of the urine, I administered the bitartrate of potass in diuretic doses. Now this would be apparently an unscientific plan of treatment, if this medicine be supposed to exercise any direct stimulating influence upon the kidneys. It is probable, however, that its diuretic powers may be due to some chemical or physical change which it produces in the blood, whereby the exosmose of its water through the Malpighian vessels is favoured. On this view no objection can exist to the employment of this remedy in inflammatory states of the kidney: and, indeed, experience tells so much in its favour, that we should not be justified in abstaining from employing it, merely on account of an hypothesis, which may or may not be well founded.

[As the acute stage passed away, and the urine began to flow more freely, the quantity of blood diminished; but in rather more than three weeks after his admission into the hospital, the hemorrhage became more violent than ever. The treatment was now changed, and stimulants, nutritious diet, counter-irritation, and four-grain doses of gallic acid, were given with good effect. The third case related by Dr. Todd was one of dropsy following scarlatina; and in the fourth the hemorrhage seemed to have been at the first vicarious of the catamenia, which had not appeared, the patient being a girl of sixteen. Dr. Todd remarks:]

From the long duration of the hemorrhage in this case (two months), and the state of extreme debility to which the girl was reduced, I was anxious to improve the state of her blood as much as possible, and to check the hemorrhage. She was well supported, had a moderate allowance of port-wine daily, and took astringents, lead, gallic acid, tannin, the tincture of the sesquichloride of iron. The hemorrhage, however, showed no disposition to stop; it diminished for a little while, but returned again with as much intensity as before. She is now again taking gallic acid in large and frequently repeated doses. If the hemorrhage does not

soon cease, I intend to try some of the terebinthinate medicines, which are supposed to exercise a styptic influence. There is no doubt that they do act favourably as stypties in intestinal hemorrhage, but in renal hemorrhage their power is much less certain, and moreover, they are very apt to excite irritation.*

Of the four cases which I have now given you, you will see that in two—the first and third—the hemorrhage was due to irritation; in one, the second, it was first caused by irritation, and afterwards continued by the patient getting into a peculiar constitutional hemorrhagic state, called by some *passive hemorrhage:* the last case may be looked upon as purely *passive*, at least during the greatest part of the duration of her malady. Now by the use of the term *passive* I must not be thought to admit a distinction which some pathologists draw, and to grant that hemorrhage may take place by the filtration of the blood through the coats of the capillaries without their rupture—such an hypothesis appears to me to be quite untenable; it is anatomically impossible for the blood corpuscles to pass through the coats of the capillaries unless they had pores which would be visible by the microscope. But this is the distinction I would make: in *active* hemorrhage the rupture of the vessels arises from the presence of an inordinate quantity of blood in them; in *passive* hemorrhage the same rupture arises, not so much from the quantity of the blood as from its depraved quality, and the ill nourished and weakened condition of the coats of the vessels themselves, which give way on the slightest pressure.

Thus we see there are two distinct ways in which renal hæmaturia may occur, and it is very important that the practitioner should clearly determine the real cause of the hemorrhage, as it is this diagnosis which must guide him in deciding what plan of treatment he will adopt.

I may here notice some other ways in which hæmaturia may be brought on:—Renal calculus is a very frequent cause of hemorrhage; but in this case the hemorrhage is dependent not on the *presence*, but on the *disturbance* and *movement* of the calculus: the calculus may exist for a long time, and yet no hemorrhage occur; but if the calculus be loosened by exercise or any other cause, blood is passed immediately: this may often be noticed in gouty patients. Again, a state of general cachexia, such as occurs in scurvy, may bring on hæmaturia, or such as results from an aguish state, brought on by the malaria of marshy districts: nothing is more prejudicial to hæmatosis, or the healthy elaboration of the blood, than the influence of the paludal poison. Sometimes a great development of the oxalic diathesis will give rise to renal hemorrhage;

* The necessity for great caution in the use of these remedies is shewn by the sequela of this girl's case, which terminated, some time after this lecture was given, in her death. The hemorrhage resisting all the ordinary remedies, five drops of spirits of turpentine were given three times a day. In the course of two days this remedy was followed by strangury, and a great diminution in the quantity of the urine. This was followed by a low febrile state, with oppressed brain, in which the patient died. The kidneys were in state of chronic nephritis.

and Dr. Prout mentions that he met with several instances of this after our first visitation of cholera, when the oxalic diathesis prevailed extensively.

The nature of the treatment should be determined in a great measure by that of the *cause*. If it is irritation, that irritation should be subdued; the irritating agent should be diverted into other channels by the stimulation of the other emunctories, and counter-irritants should be used; but care should be taken not to use such as might in their constitutional effects irritate the kidneys. If a general tendency to hemorrhage is the cause, anti-hæmorrhagics should be administered,—lead, tannin, gallic acid, are those from which you will find the greatest benefit; but tannin or gallic acid is, I think, by far the best. The worse case I ever met with, which was not unlike the second case I have mentioned to you, I treated with tannin, and the man got perfectly well, with a sound kidney. In addition to the tannin, you may with great advantage give a little port wine. Gallic acid is very similar to tannin, both in its effects and in the freedom with which it may be administered. It may be given suspended in a little mucilage, or made into a pill with confection or extract: it may be given in very large doses. I give as much as five grains two or three times a day, and even much more, frequently. The only disadvantage arising from it is that it constipates the bowels, but this is a very minor consideration: in fact, in some cases it is not altogether a disadvantage, for the less drain the patient has from him the better. Now we have more experience of gallic acid than we were aware; *Ruspini's styptic*, which has been so extensively and so advantageously used, has been ascertained by Dr. A. T. Thompson to be chiefly a solution of gallic acid in alcohol. In all cases of hemorrhage, whether hæmoptysis, hæmatemesis, hæmaturia, or any other form dependent on hemorrhagic tendency, I have used gallic acid with the greatest advantage, and I am therefore inclined to look upon it as the best styptic which we possess.

When the hemorrhage results from a mechanical cause, such as the destruction of a renal calculus, the best single remedy is rest, to which may be added, free dilution, and a general treatment applicable to the peculiar diathesis of the patient.

Medical Gazette, January 19, 1849, *p.* 96.

50.—ON THE EXCRETION OF URIC ACID.

By Dr. A. B. Garrod, Assistant Physician to University College Hospital, &c.

[After calling our attention to a fact which he has recently ascertained,—viz., that there is no necessary relation between the formation of uric acid in the system and its excretion in the urine; and that the blood may be found loaded with this principle, and yet the urine be entirely devoid of it,—Dr. Garrod proceeds to speak of]

Uric Acid Diminished.—A diminished amount of this acid in the urine may arise either from a decrease in its formation in the system, or from a defective "uric acid excreting function" of the kidneys; the former occurs in certain affections connected with a low state of the system, as in anæmia, after low fevers, or from any other circumstance producing such a state of health. The same happens in some cases of diabetes, and is usually regarded as a very unfavourable sign in the disease, for it may probably then arise from a general want of power in the animal frame; perhaps, however, this deficiency may sometimes be due to deficient excretion; this point has not as yet been experimentally proved, the examination of the blood for the estimation of uric acid not having been made. A diminution of uric acid in the urine from defective excretion is well exemplified in certain cases of gout; and such a condition of kidneys remains very permanent in those cases where the formation of tophaceous deposits, or chalk stones, (composed chiefly of urate of soda,) are formed. Often the uric acid alone is retained, the urea being excreted as usual. In certain stages, also, of granular degeneration of the kidneys, especially the advanced, the uric acid becomes diminished in the urine; but in these the urea also suffers the same diminution.

Uric Acid in Excess.—In inflammatory affections and fevers it appears to be increased, especially when certain organs, such as the spleen and liver, are affected; this increase is both relative and absolute—much more of the principle being thrown out than in health, although the amount of urine is often considerably diminished. The same increase is observed in tubercular affections of the lungs; but in these, especially in the latter stages, the relative increase is greater than the absolute, a fact easily accounted for from the small amount of change which takes place in the system when the powers of life are reduced to so low an ebb.

If we examine the influence of food on the formation of uric acid, we shall still be unable to see any clear relation existing between the quality of the diet and the quantity of the acid formed; for in serpents living on flesh, and in carnivorous mammalia, the quantity thrown out differs extremely, and the same occurs in chelonia feeding on green vegetables, and herbivorous mammalia. The influence of different kinds of diet in the human subject I have already spoken of when detailing the results of Lehmann's experiments performed on himself, which appear to show that in health, when digestion is perfect, a highly azotized diet does not cause an increase in the uric acid.

The performance of the function of the skin seems in some way to influence the formation of uric acid, and it is in the urine of those animals in whom this is defective, that we observe the acid reach to the greatest extent. In the human subject also, a close connexion is observed between the arrest of the perspiration and the appearance of a deposit of urate of ammonia in the urine—*ex. gr.*, in common catarrh.

The most fruitful cause, however, of its abnormal production in

the human subject appears to be indigestion; in that term I include both dyspepsia, and, also, the introduction into the system of excess of nitrogenized matters above what are capable of assimilation.

Lancet, Nov. 25, 1848, p. 371.

51.—*On the Source of the Sugar in Diabetic Urine.*—By Dr. A. B. Garrod.—In health, when sugar is taken into the stomach, it is not to be found in the urine, unless the amount introduced in a given time becomes excessive: it hence appears that there naturally exists in the system a power of destroying this substance, and breaking it up into other compounds, probably carbonic acid and water, which become eliminated by the lungs and skin. Very different views have at times been held as to the pathology of diabetes, some ascribing the disease to an affection of the kidneys, others, to a derangement of the stomach, where they consider that the sugar is formed. Against the first view many objections may be stated, for, in the first place, the kidneys in this disease, after death, have frequently been found quite healthy, and at other times only in an enlarged and congested condition, doubtless a secondary effect, arising from the large amount of work which they have been obliged to perform, in order to rid the system of the saccharine matters. With regard to the second view—viz., that the disease has its origin in the stomach, many and much more powerful arguments can be adduced in its favour, such as the detection of sugar in the matters vomited, and in the fæces; the symptoms referred to the alimentary canal, thirst, dry tongue, &c.; but these can be explained, also, in a different way, for if sugar existed in excess in the blood, we should naturally expect to find it in the secretions of the alimentary canal, as well as in the other secretions and excretions; and again, there is much reason to suppose that during the healthy digestion of amylaceous principles, as starch, &c., a conversion into sugar takes place before they become absorbed by the alimentary canal. We know, also, that we may take sugar as an article of food without the occurrence of a saccharine condition of the urine: hence it appears that it cannot be simply a perverted state of stomach causing the conversion of amylaceous bodies into sugar, which gives rise to the disease, and we must look still deeper into the changes which afterwards occur, before we can hope to understand the pathology of this obscure affection. What becomes of the amylaceous principles after they are absorbed into the blood? They can scarcely be detected in that fluid, even although large quantities have been taken; hence they must in some way become altered in properties, for we cannot suppose that they are destroyed as quickly as they are absorbed: perhaps they are converted into lactic acid, and unite with bases, as soda, &c., in the blood; but as hitherto we have no positive proof, although there is great probability of the existence of this acid in that fluid, we cannot at present decide on the point; they may, in their altered form, constitute a portion of the undetermined extractive matters of the blood. As we find the elements contained in these principles

eliminated from the body, in the form of carbonic acid and water, from the lungs and skin, there is every reason to suppose, that when the functions of the economy are properly performed the principles are thus thrown out, having during their metamorphoses been subservient to the performance of certain important offices, as the production of animal heat, &c.; and that in diseased conditions of the system, termed saccharine diabetes, this change is not effected; and the sugar which is then formed, remaining as a foreign body in the blood, becomes eliminated by the kidneys in an unchanged condition. According to this view, the disease would be referred to a defect in what may be termed the secondary assimilating functions; but of the real nature of this defect we are at present ignorant. Some have ascribed it to a deficiency of alkaline salts in the blood; but I am not aware that the blood in this disease is less alkaline in its reaction than in health; and certainly alkaline salts have repeatedly been given to diabetic patients without diminishing the quantity of sugar in the urine. Some very interesting experiments were performed a short time since, by Professor Graham, on diabetic patients in University College Hospital. The experiments were continued daily, for several months, in two of the cases; and in several other cases, for a few days at a time. The result of these researches are published in Dr. Walshe's article on "Morbid Products" in the Cyclopædia of Anatomy and Physiology, and are as follows:—

"The quantity of saccharine matter found in the urine never exceeded the sugar and starch in the food. On the other hand, the sugar and starch in the food were accounted for in the urine to within one-fourth or one-fifth of the whole quantity. As there was also sugar, besides, in the fæces, in a sensible, although not considerable quantity, it appeared to follow, that sugar, and substances convertible in the stomach into sugar, are, in diabetic patients, nearly, if not entirely, indigestible; that is, they pass through the blood without being burned, and thrown off in the form of carbonic acid and water, as they are in a healthy state. The idea of any portion of the saccharine matter found in the urine being formed from the protein, or azotized portion of the food, was entirely excluded.

"The proportion of sugar in the urine has a limit which it cannot exceed, but which varies within a small range in different patients, about four and a half per cent. being the usual maximum. The volume of the urine comes, therefore, to be entirely governed by the quantity of saccharine matter in the food.

"Although sugar escapes oxidation in the respiratory process of diabetic patients, alcohol is entirely consumed. On one occasion a diabetic patient swallowed twelve ounces of absolute alcohol, contained in a quart of whisky, within twenty-four hours, without a trace of it appearing in his urine or other excretions. Gum arabic, also, taken as food to the extent of five or six ounces a day, did not cause an increase of sugar in the urine, and was probably, therefore, digested. Both alcohol and gum are, like sugar, pure aliments of respiration.

"It is well known, that in the air expired by man the proportion between the volume of carbonic acid found and oxygen deficient is remarkably uniform, and indicates that an excess of oxygen, nearly constant in amount, is consumed above what is represented by the carbonic acid, due, of course, chiefly to the oxidation of the hydrogen. An amylaceous diet, in which the only combustible element is carbon, tends to reduce this disproportion, while an animal diet increases it. I therefore expected to find a deficient proportion of carbonic acid in the expired air of a diabetic patient confined to an animal diet; but such was not the case; the proportion proved to be perfectly normal. This implies a considerable waste of azotized food, that even the protein compounds are only partially digested in the system of a diabetic patient. The assimilating power appears, indeed, to be generally deficient."

Lancet, Dec. 2, 1848, *p.* 597.

52.—*On Oxaluria.*—By Dr. A. Garrod.—Healthy urine does not appear to contain oxalic acid; if it did so, the lime which naturally exists in this fluid would cause it to be precipitated in the form of the insoluble oxalate of lime, and hence it could readily be detected by the microscope. At first, our knowledge of the state of system connected with the formation of this acid was derived from the cases in which calculi of oxalate of lime were formed, and to Dr. Prout we are chiefly indebted for such information. More recently, however, since the application of the improved or achromatic microscope in the investigation of urinary deposits, this body has been found to be of much more frequent occurrence than was formerly supposed, and at the present day to such an extent has it been found to exist, that unless it occurs in very large quantities, and for some time, it is questionable whether we should lay much stress upon it as a pathological sign.

Microscopic and Chemical Characters of Oxalate of Lime Deposits.—If urine containing oxalate of lime is shaken, and a few drops submitted to examination under the microscope having a magnifying power of about two hundred diameters, beautiful crystals of the oxalate are seen, presenting the appearance of flattened octahedral crystals, which assume different forms according to the manner in which they lie on the glass. Sometimes along with these, a different form of the same oxalate is seen—viz., vitreous-looking masses, striated, which assume the form of dumb-bells, ovals, or spheres, first described by Dr. Bird; these latter forms, however, are comparatively rare, and I have only met with them in cases where the patients have for a long time passed immense quantities of the oxalate. Dr. Bird has given the following measurement of oxalate of lime crystals.

Length of the side of the octahedra, from	$\frac{1}{750}$	inch to	$\frac{1}{3600}$
Long diameter of dumb-bell crystals ...	$\frac{1}{563}$	"	$\frac{1}{1420}$
Short diameter of ditto	$\frac{1}{750}$	"	$\frac{1}{2500}$

I may remark, that I have occasionally met with the octohedra much larger than 1-750 of an inch, and very frequently of a size considerably smaller, some certainly not measuring 1-50000 of an inch, and requiring a very perfect object glass, one twelfth of an inch focus for their perfect definition.

If the oxalate exists in small quantities only, we should allow the urine to stand for some time in a tall vessel, and decant the clear fluid from the deposit which slowly takes place. A drop or two of this will then exhibit the crystals in much greater abundance than the urine itself; and if we wish to collect the crystals, we should add distilled water to the deposit, and after a few minutes, the crystals having subsided, remove the fluid by means of a pipette.

When dry, the crystals have the appearance of a glistening powder, and possess the following characters:—They are insoluble in water, acetic acid, or alkaline solutions, unless boiled for some time with these latter; soluble in hydrochloric and nitric acids. When heated to dull redness on a piece of platinum foil, a carbonate of lime is formed, which dissolves with effervescence in acetic acid, and if heated to a bright red or white heat, pure lime remains, which gives the alkaline reaction to test paper,

It is very common to find urate of ammonia mixed with the oxalate of lime in the deposit, which can be removed by warming the deposit to which the distilled water has been added previous to removing the fluid with the pipette.

Oxalate of lime occurs in urine having very different characters in other respects. Very frequently in dense urine having an excess of urea and a deposit of urates, the urine is acid in reaction, at times giving rise, according to Dr. Bird, to a further deposit of the oxalate on the addition of lime salts, which would indicate, that in such cases all the lime in the urine had been thrown down by the oxalic acid, and still some soluble oxalate, as of ammonia or soda, remained in solution. Sometimes, though rarely, oxalate of lime occurs in saccharine urine. A case illustrative of this is now under my care; but here, in addition to the oxalate, urate of ammonia is also present. In one case I noticed it in connexion with a deposit of cystine, but here also there was no deficiency of uric acid in the urine.

Pathology of Oxalate of Lime.—Dr. Prout considers the presence of oxalic acid in the urine to be, like diabetes, due to some malassimilation of the amylaceous principles of the food. This conclusion is one very naturally arrived at, when we consider the close connexion which exists between sugar and oxalic acid, and how readily the latter body may be produced from the former by the action of a strong oxidizing agent, as nitric acid, and also from the symptoms which appear in the aggravated form of this diathesis, more or less resembling some of those which occur in diabetes: it must be remembered also, that it was only in the aggravated form that, a few years since, this diathesis could be detected; but there are circumstances which favour the idea, and render it more

probable that the production of this acid is, at least in most cases, more connected with the uric acid than with the saccharine diathesis; for we find, in examining calculi, that alternations of urate of ammonia are of constant occurrence. Again, we find that deposits in the urine of oxalate of lime and urate of ammonia very frequently coexist, and that the urine of a patient which one day exhibits abundance of crystals of the oxalate, will on another day have them almost entirely replaced by urate of ammonia. And, again, in patients voiding urates on recovering from acute diseases, as rheumatism, &c., the urine will, on some slight change of the weather, and from other trivial circumstances, show the presence of crystals of oxalate of lime. We know, also, how readily oxalic acid can be produced from uric acid by the action of even weak oxidizing agents, as peroxide of lead; and that urate of ammonia will, in presence of lime, spontaneously undergo this change, as is seen in old specimens of guano; the uric acid formerly existing in them being often greatly replaced by oxalic acid. It is also asserted that the amorphous deposits of urate of ammonia, by being kept for some time in urine, will, in like manner, undergo this change. I think I have found in some specimens containing a mixed deposit of urates and oxalates, that the latter have become greatly increased by being allowed to remain. Liebig attributes the formation of oxalates from the urates, by supposing the uric acid has undergone further oxidation. It appears, however, that when the diathesis is thoroughly established, it depends on some mal-assimilation, and to have a close connexion with the digestive function. And perhaps, in considering the diseased states in which oxalates are found in the urine, it would be proper to separate them into at least two classes; one, in which the oxalates are only occasionally formed, and in connexion with the uric acid diathesis; the other, where oxalic acid is a constant constituent in the urine, and in a great measure replaces this latter body, and in which the relative amount of urea is greater than in health.

In the former division, we know of no symptoms which accompany the formation of this acid; but in the latter, many and serious symptoms are generally present; usually they are of a nervous character; great depression of spirits, even hypochondriasis; incapability of exertion, or extreme depression, after slight exertion; dull, heavy pain in the loins; dyspeptic symptoms, indicating a diminution in the powers of the digestive organs; occasionally an irritability of the bladder, (I have sometimes found the disease in connexion with involuntary nocturnal micturition). Dr. Plant considers that cachexia, produced by a syphilitic taint, hereditary or acquired, gives a predisposition to this diathesis; and that among the exciting causes, one of the most powerful is the residence in a damp and malarious district; he also notices the prevalence of the diathesis during the epidemic of cholera in 1832. Among the symptoms of the diathesis, he mentions the liability to cutaneous affections, especially of an impetiginous character.

As the well-marked cases in which this diathesis prevails are

almost constantly associated with an excess of urea in the urine, it is difficult to know what symptoms are connected with the abnormal increase of this latter principle, and what to the formation of this unnatural product. So far as my experience enables me to form an opinion on the subject, it amounts to this: that when, in a patient in whom a considerable tendency to the formation of an increased quantity of uric acid exists, a condition of system leading to an increased excretion of urea, is induced, then oxalic acid is very apt to be an accompaniment, and the uric to be nearly, if not entirely, replaced by this acid; for the truth of this opinion, however, I would not vouch. When this disease lasts for a considerable time, a calculus is liable to form, but this is exceedingly rare compared with the number of cases in which the oxalate of lime is found in the urine, probably about the same ratio exists in this as in the other diatheses.

Lancet, Dec. 2, 1848, *p.* 597.

53.—*On Bloody and Albuminous Urine.*—By Dr. A. B. Garrod.—[When blood is not coagulated, but diffused through the urine, it communicates to it a colour resembling that of port-wine, and deposits a sediment, ascertained by microscopic examination to be composed of the blood-globules.]

The colour of the urine must not be alone depended on, as indicating the presence of blood, for a colour not unlike that produced by the solution of the hæmatosine of the globules may be owing to the presence of bile pigment, colouring matter of the urine in excess, (purpurine), or from certain principles taken into the stomach, as logwood, &c. These, however, may be readily distinguished, for if the colour depends on blood, heat causes it to become altered, and it is thrown down when the albumen is coagulated. Again, bile pigment gives the peculiar play of colours when treated with nitric acid, and that from vegetable colouring matters is not altered by a boiling temperature. The only difficulty in these cases is to distinguish whether the albumen of the urine is entirely due to the effused blood, or not, as hæmaturia not unfrequently occurs during the course of affections of the kidneys, giving rise to albuminous urine. If such, we can, however, generally determine the point by comparing the coagulum of albumen, which the clear portion gives when heated, with the amount of blood discs deposited; or we can wait and re-examine the urine, when blood is not present in the fluid, and see if it then contains albumen.

Albuminous Urine.—In perfectly healthy urine, not a trace of albumen can be detected by the most delicate tests, but in many morbid conditions we not unfrequently meet with this substance, and as a knowledge of its presence is of the greatest importance, I will endeavour to make you acquainted with the best methods of proceeding for obtaining such information.

Albumen possesses the property of coagulation by heat, about 160° Fahr., and therefore when urine containing this principle is heated, a coagulation will occur, and the fluid become opaque:

this will generally happen, as the urine has usually an acid reaction, but should it be alkaline from any cause, then exposure to heat alone is not sufficient, the alkaline state of the fluid holding the albumen in solution; we can, however, guard against this by insuring an acid state of the fluid, by the addition of a few drops of some acid, as the nitric; and if urine, thus made slightly acid, gives a precipitate when heated, we may conclude that albumen is present. Coagulation by heat alone is not a certain sign of its presence, as in some non-albuminous urines a precipitate of phosphates may occur, even when the urine is slightly acid; these, however, are re-dissolved by the addition of a few drops of acid. Nitric acid alone is not sufficient, as when a large quantity of urates are in solution a precipitation of uric may occur; which, however, is re-dissolved, when the fluid is heated with the acid; and again, after the administration of cubebs and copaiba, certain matters of an oily nature are sometimes found in the urine, which, on the addition of cold nitric acid, cause an opacity. Many other modes of detecting albumen have been proposed, but none are so easy of application, and so certain in their results, as the method I have just mentioned; for example, the albumen may be thrown down by ferrocyanide of potassium, after the urine has been previously made acid with acetic acid, or a solution of the bichloride of mercury may be employed for the purpose, which causes its coagulation; these latter tests, however, will cause the precipitation of other protein compounds besides albumen, and therefore are less valuable. When it is desired to estimate the quantity of albumen contained in the urine, we may proceed as follows:—take a weighed portion of the fluid, and heat it in a platinum crucible, having first acidulated with a few drops of nitric acid, keep constantly stirring with a glass rod, till the boiling point is attained, then pour the whole on a weighed filter, and afterwards thoroughly wash, dry, and re-weigh; the excess of weight above that of the filter gives the amount of albumen contained in the urine.

Pathology of Albuminous Urine.—When albumen exists in the urine, independent of the presence of blood or pus, it seems to be owing to some morbid condition of the kidneys themselves. Probably the immediate cause is congestion, or an obstructed flow of blood through the renal capillaries. Thus it can be artificially produced by obstruction to the veins, as shown by Dr. Robinson, and it also at times occurs during pregnancy, as noticed by Dr. Lever, (here the same explanation probably holds good); also from certain abdominal tumours causing a like pressure. This I had an opportunity lately of observing in a patient suffering from ovarian disease, and in whom the kidneys were found to be perfectly healthy. Albuminous urine also not unfrequently occurs during the congestive stages of febrile disease, and disappears on the recovery from such. This is especially the case after scarlatina, and sometimes, it is stated, after measles also, and other skin affections; likewise in certain cases where the kidneys appear to become intensely congested from exposure to cold. But by far the most

common cause of this state of the urine is that disease of the kidneys first made known by the researches of Dr. Bright, and to which the name of Bright's disease, or granular kidney, has been given.

Lancet, Dec., 2, 1848, *p.* 599.

54.—*On Albuminuria.*—By Dr. J. D. Heaton, Leeds.—[Speaking of the employment of hydragogue purgatives in the treatment of this disease, Dr. Heaton observes:]

I find none more convenient than croton oil, which produces copious evacuations, and with less sickness and discomfort than are caused by elaterium. Some of the neutral salines, as sulphate of potash, are likewise useful for this purpose; these should be given in rather a concentrated solution, which then determines an endosmosis of the watery part of the blood into the intestine from the blood-vessels, which, thus deprived of their natural tension, become actively absorbent of the dropsical effusion which they had before allowed to escape. But if the saline be given much diluted, or, what is in effect the same, if followed by much diluent drink, it then enters the blood, and acts upon the kidneys. Cream of tartar is likewise useful as an hydragogue purgative of mild operation, when given in full doses, and what enters the blood acts favourably upon the kidneys.

[When there are no febrile symptoms, and it is required to give tonics to improve the general health, Dr. Heaton says:]

In this disease, no medicines are equal to the preparations of iron, and of these I know none so suitable as the tincture of the muriate, which combines diuretic with its chalybeate properties. In many cases I have found most marked benefit from the use of this remedy, both to the general health of the patients, and in producing a more healthy condition of the urine, which is the best proof of actual improvement. The effect of this disease upon the blood is very marked and characteristic; besides the accumulation in the blood of urea, which should be excreted by the kidneys, and the diminished proportion of albumen in the serum, there is a very great reduction in the amount of red globules which it contains. This is evident in the pale leucophlegmatic appearance of those who have been long the subjects of albuminuria: and we know that no medicine has an effect equal to chalybeate preparations, in restoring the red globules to blood in which they are deficient.

Provincial Medical and Surgical Journal, April 4, 1849, *p.* 169.

55.—*Theory of Diabetes.*—By M. Mialhe.—The author assigns as the cause of saccharine urine, and the disorders consequent upon its secretion, a want of sufficient alkalinity in the fluids of the body. To him the cause of diabetes is not a peculiar agent which gives diabetic patients the faculty of transforming certain alimentary substances into sugar, which latter entering the torrent of the circu-

lation is eliminated by the urine; but he maintains, first, that the transformation of amyloid substances into sugar is not peculiar to diabetic patients; that it is not an accidental phenomenon, but that it is, on the contrary, a necessary part of the digestion and assimilation of food. Secondly, that this transformation is brought about by the agency of a special ferment, which the author has discovered in the salivary glands of all animals, and which exercises a specific action on feculent substances similar to the action of diastase (the active principle of malt) on starch, whence he calls this ferment *animal diastase*. Thirdly, amyloid substances must, in all animals, without exception, be converted into sugar under the influence of that animal diastase, in order to become fit for absorption and assimilation. But, says the author, what becomes of this sugar? It must participate in nutrition, and in order to do this it must suffer decomposition in the circulating fluids, for in the normal state it cannot be detected in any of the secretions. When it passes unaltered through the kidneys, it may be inferred that some powerful cause has prevented its decomposition, and thereby rendered it unfit for assimilation. This is, then, an abnormal and pathological occurrence which may be regarded as the consequence of the perturbation of another order of chemical phenomena; and this perturbation consists in a want of alkalinity in the fluids of the animal economy. Here the author, grounding himself on his former investigations relative to the digestion and assimilation of amyloid substances, draws the following inferences:—1. The alkalies normally contained in the blood and in the animal fluids are the principal agents of the digestion and the assimilation of saccharine and amyloid substances. 2. Starchy aliments are in all animals transformed into glucose by the agency of the animal diastase, whereby they become absorbable; this glucose, in order to become assimilable, is then transformed by the alkalies of the blood into new products, as kali-saccharic acid, formic acid, ulmin, &c., which bodies are all endowed with a very energetic disoxygenizing power, and probably destined to act as a counterpoise to the respiratory oxygenation. In a healthy subject, the usual alkalinity of the blood is amply sufficient for the transformation of the saccharine matter, but if this alkalinity be deficient, the transformation cannot take place; the sugar, being then neither decomposed nor assimilated, spreads itself over the economy, becomes a foreign body, and is, as such, cast off, not only by the kidneys, but by all secreting surfaces, and then we have diabetes. The cause of this affection may therefore be traced to a defective assimilation of the sugar, through a want of alkalinity in the animal economy. Human blood is naturally alkaline: we constantly introduce into our system acid elements, which would eventually predominate if they were not counterbalanced by especial secretions—viz., the perspiration and urine. So that a healthy man has one kind of secretion always yielding an acid reaction—viz., the perspiration and urine, and another kind, with alkaline properties—viz., the saliva, tears, and fæces. So long as these secretions retain their normal chemi-

cal nature, the due balance of acid and alkaline principles in the economy is kept up; if they all become acid, we, of course, conclude on a want of alkalinity, and *vice versa*. The former state may be brought on—1st, by the ingestion of acids themselves; 2nd, by exclusively azotized food. Meats, owing to the albuminoid substances to be found in them, contain much sulphur and phosphorus, and those bodies generate sulphuric and phosphoric acids by their combustion within the economy. These agents get diffused through the fluids, saturate at first the alkaline bases they meet with, and at last predominate. 3rd. The want of the perspiring action of the skin, which is intended to throw off acids from the economy. Thus I shall be able to show, says M. Mialhe, that by using means opposed to these three causes mentioned above, we can bring back the economy to its normal state, and excite in it a series of new phenomena. So that it appears possible—1st, to modify, as we please, the fluids effecting nutrition either in animals or vegetables, and obtain a proof of the reality of this modification by the examination of the secretions; 2nd, to invert, by means of the food or medicines, the natural order of the assimilating functions, and thus give rise to new phenomena, which change the normal products of the organism; 3rd, to control, on the other hand, the accidental disturbance of the organism, re-establish the integrity of its functions, and thus re-constitute life and health. By applying these consequences to the diabetic affection, the author proposes to restore the vitiated humours to their normal standard, and re-establish the natural order of the assimilating functions, by introducing into the economy the alkali which is wanting, and expelling the acids which predominate by the use of alkalies and sudorifics. When diabetes is produced by a prolonged ingestion of acid substances, unaccompanied by suppression of the perspiration or deep alterations of the organism, the cure by alkalies may, in some degree, be instantaneous. He cites the case of a gentleman who exhibited all the symptoms of diabetes, seemingly brought on by an excess of acidulated drinks during the hot summer of 1847. Five drachms of bicarbonate of soda, with seventy-five grains of calcined magnesia, and two and a half bottles of Vichy water per diem, sufficed to remove all the symptoms in eight or ten days.

Now we are ready to do justice to M. Mialhe's indefatigable zeal in organo-chemical investigations; but it must be confessed, that a single case is far from having sufficient weight for establishing a new theory. The author has the foible of most labourers in the field of physiological chemistry. He will needs consider the organism as a regular laboratory; for him the stomach is a still, the liver a filter, the lungs a furnace, and the skin an evaporating apparatus, &c. MM. Martin, Solon, Bussy, and Rayer, will report upon this paper, of which the above is but an abstract; they will inform us whether the proofs alleged are satisfactory, for hitherto we see but an ingenious grouping of assertions and deductions. We shall therefore recur to the subject, but cannot leave it without remarking with what facility and readiness M. Mialhe harmonizes

chemical effects. For instance: when speaking of the new products resulting from the action of alkalies upon the sugar, he mentions that these products are highly dis-oxygenizing, and immediately adds, that they, according to all probability, serve as a counterpoise to the respiratory oxidation. This appears rather a hasty conclusion. Another passage, which is strongly indicative of the exclusiveness of the author's chemical views, is that wherein he mentions the development of sulphuric and phosphoric acids, attributed to the ingestion of phosphorus and sulphur in meat. These acids, according to him, gradually saturate the alkaline bases in the fluids, and finally predominate. Here, again, we have a chemical reaction, which is simple and natural enough out of the body, assumed as taking place, just in the same way, in the mysterious recesses of our capillaries. Sir James Murray regards the human frame as a Leyden jar; Dr. Parkin, as a gasometer; M. Mialhe, as a laboratory! The humorists, solidists, mechanists, and chemists of old were hardly more wedded to peculiar views.

Lancet, Nov. 25, 1848, *p. 589.*

56.—*On a Newly-discovered Substitute for Bread, for Diabetic Patients.*—By Dr. John Percy, F.R.S., Birmingham.—It appears to be now generally admitted, that, in the treatment of diabetes mellitus, amylaceous matter should, in a greater or less degree, be excluded from the diet; but as is well known, under such restriction of the food, the diabetic patient soon becomes weary of the ordinary kinds of azotised matter, as beef, mutton, &c.; hence various substitutes for common bread have been proposed. Some years ago, my friend Mr. Morson, of Southampton-row, London, prepared, at my request, specimens of bread containing gluten in various proportions, but it was only relished by the patient when it contained a considerable quantity of starch; and when the proportion of gluten was increased beyond a certain amount, it became so tough and tenacious as to be extremely disagreeable. I have also made trial of gluten bread prepared at Paris, whence it was brought by Mr. Morson, but with no better success. Recently Dr. Prout has published a receipt for a kind of bread devised by his patient, the late Rev. S. Rigg, (*vide* "Stomach and Renal Diseases," fifth edition, p. 44,) and this is probably the best substitute for common bread which has hitherto been produced. Some time ago, Mr. Charles F. Palmer of this town, prepared for me, with great care, specimens of bread from Dr. Prout's receipt, but the patients to whom it was given complained of some difficulty in swallowing it, owing to the large quantity of bran which it contained. Mr. Palmer then suggested the use of the matter of rasped potatoes left after the complete removal of the starch by washing, to replace the bran. He carried the suggestion into practice, and produced a kind of bread which I think deserves the attention of the profession.

It has been employed in the general hospital of this town, especially by my friend Dr. James Johnstone, and also by several private practitioners, with decided advantage. In composition it may be considered as Mr. Rigg's bread, in which the bran has been replaced

by the residual matter of the potatoes above mentioned, and in the fact of its being rendered light and porous by hydrochloric acid and carbonate of soda, precisely as is the case with Dodson's unfermented bread.

I here introduce Mr. Palmer's receipt:—Take the ligneous matter of sixteen pounds of potatoes, washed free from starch; three quarters of a pound of mutton suet; half a pound of fresh butter; twelve eggs; half an ounce of carbonate of soda; and two ounces of dilute hydrochloric acid. This quantity to be divided into eight cakes, and in a quick oven baked until nicely browned.

It is, as must be obvious, an expensive article, but with many diabetic patients this will not be an object of consideration. It is somewhat improved in taste by being slightly toasted. At first, gum arabic, in sensible quantities, was introduced into this bread, on the ground of the assertion of Professor Graham, that when that substance is taken by a diabetic patient, the proportion of sugar evolved from the system is not thereby increased, and that, consequently, it might probably supply matter for pulmonary oxidation. However, it was found that it rendered the bread tenacious and disagreeable, so that its use was subsequently abandoned.

I wish it to be understood that whatever merit there may be in the production of this bread, is entirely due to Mr. C. F. Palmer.

My friend Dr. Evans has suggested, and I think with reason, that the bread might probably be improved by the addition of a certain proportion of bran: and accordingly, Mr. Palmer has already made some experiment upon the addition of bran, and with a satisfactory result.

Lancet, March 17, 1849, *p.* 289.

57.—*Case of Renal Dropsy produced by Copaiba.*—By E. Thomas, Esq., House Surgeon to the Cumberland Infirmary.—[The patient was a man who was taking copaiba for a gonorrhœa; being anxious to get well soon, he took twice the quantity that was ordered:]

When he presented himself at the infirmary, his legs and thighs were œdematous, besides a little effusion into the abdomen. His urine was of a smoky colour and very albuminous. He was cupped on the loins, and ordered a drachm of compound jalap powder twice a day, and a warm bath twice a week. This treatment was continued (though less vigorously) until the end of July, when he was discharged well. I have since repeatedly examined his urine, and always found it healthy. I may remark, that all the information elicited from him tends to show, that the drug with which he overdosed himself had produced the disease. He had none of the early symptoms of granular disease of the kidney, though for many years when obliged to do extra work he has been subject to *lumbago*. At that time there was no scarlet fever near his house, though it was very rife in other localities of the town, nor had he been exposed to wet and cold. It may not be unreasonable to suppose, that copaiba, when not producing purgation, may cause in some mysterious manner, so much disturbance in the renal capillaries, as to bring on, like the scarlet fever poison, renal dropsy.

Medical Times, Dec. 9, 1848, *p.* 144.

SURGERY.

DISLOCATIONS AND DISEASES OF BONES AND JOINTS.

58.—CASE OF EXCISION OF THE UPPER END OF THE FEMUR.

By H. Smith, Esq , late House Surgeon to King's College Hospital, &c.

[The patient, a man thirty three years old, had been affected with disease in the left hip-joint for many months, and the head of the bone had slipped upon the dorsum ilii, but no attempt at anchylosis had taken place. The patient, who had been a fine tall man, was becoming much wasted from suppuration. Mr. Smith was sent for to the case by Dr. Milroy. He says:]

After carefully looking at this case, I expressed my opinion to Dr. Milroy, that it was one of those in which the surgeon might take into consideration the propriety of some operative proceeding, —of an exploratory character, at least,—and then act according to circumstances. It appeared to me, that the head of the bone was the part principally affected; and, that lying as it did in its abnormal situation, it was acting as the source of irritation, and was gradually destroying the patient. It was evident there was no disease of a very serious nature in the pelvis. Taking this into consideration, and to what an extremity the patient was reduced, I did not hesitate to regard this case as one for which the operation of excision of the head of the femur was adapted. It was determined, however, that we should be in no hurry about the operation, but would watch the patient and examine him carefully from time to time.

[Several gentlemen, including Mr. Fergusson, took the same view of the case; and the operation was accordingly performed on the 14th of June:]

Operation.—The patient having been placed under the influence of Chloroform by Dr. Snow, and laid on a table on his right side, I commenced an incision over the head of the bone, and carried it to the extent of about seven inches in the direction of the shaft of the femur. By this the head of the femur was exposed, and it was discovered lying in the midst of an abscess, and in a carious condition. The tissues were then cleared away from the neck and trochanter, and in order to effect this with more ease, a small incision at right angles with the first was made. The limb was then carried across the other, and by this means, and the fingers of the assistant, the

upper end of the bone was thrust out of the wound as much as possible. The knife was then carried carefully round below the great trochanter, and with a common saw the section of the bone was made. The condition of the acetabulum was then looked to, and a portion of the rim being found carious, the bone forceps were used there; the gouge was also applied to a small bare spot at the bottom of the cavity. The wound was then stitched together, and water-dressing was applied. No vessel required a ligature. There were not more than four ounces of blood lost. The portion of bone removed measured a little more than three inches in length, the section having been made just below the great trochanter. The disease was wholly confined to the articulating surface, which was entirely denuded of its cartilage, and carious; some imperfect granulations existed over some portion of it. Since maceration, the bone has presented a most beautiful and perfect specimen of caries.

One hour after the operation, the patient appeared in a comfortable state; he remembered nothing about it. Complained of some pain in the wound, from which a slight oozing of blood existed. Pulse 84. To have nothing but a little thin gruel and cold water. Eleven P.M., he has been dosing a good deal since the operation; feels pretty comfortable; oozing from the wound has stopped; pulse 104.

June 15th.—I was delighted, when I entered his room, to see this patient doing so well. There has been no shock at all; he has passed a comfortable night; febrile action moderate; tongue slightly furred; pulse 120, very feeble; complains of thirst; wound looking healthy; takes nothing but gruel and barley water. I dressed the wound with warm water.

[For a considerable time the case went on very well; the wound was almost healed, and there was a considerable degree of motion in the limb. Towards the latter end of September, however, symptoms of disease of the kidney appeared, and he died from this disease, on the 1st of November. This was the first time that this operation had been performed on the adult in this country. Mr. Smith makes the following remarks on the mode of operating:]

As regards the manual part of the operation, I must state that it is not of so formidable a nature as some may suppose. It requires a knowledge of the healthy and morbid anatomy of the parts, a little nerve and firmness, and a facility in the use of instruments, especially the saw. I have heard surgeons of undoubted skill in operating recommend only one incision, as the wound will subsequently more readily heal, and the cicatrix become less unsightly. But in such an operation as this, I fancy these are very minor considerations; there need be no hurry in healing up the wound, for should union take place rapidly, the discharge, which is necessarily great after the operation, will not come freely away, and will probably cause trouble.

In the present instance, I found that by making a small incision at a right angle to the first, I was enabled to clear away the hardened tissues from the bone with great facility, and had very little

trouble with the saw. With respect to this instrument, several modifications have been recommended for this particular purpose, and I was somewhat amused with the ingenious contrivances suggested to me by various friends before I performed this operation; but I preferred using the common hand-saw, and I found it answer admirably. I recollected that the chain-saw had failed in the hands of such men as Mr. Fergusson and M. Roux.

Lancet, Nov. 25, 1848, *p.* 579, *and Dec.* 9, *p.* 636.

59.—ON EXCISION OF THE HIP-JOINT.

By Professor Fergusson, F.R.S., &c.

[A case is related of hip-joint disease of more than two years standing, occurring in a girl ten years of age. After she had been a short time in King's College Hospital, the following is the report:]

Jan. 11th.—Mr. Fergusson, at the visit to-day, enlarged an opening over the head of the femur, and removed a portion of necrosed bone which was loose; the head of the femur was detected in a carious condition. After a careful examination, Mr. Fergusson considered that the head of the bone was the part mainly affected, and he therefore resolved to remove it.

13th.—Half-past one P.M.: Mr. Fergusson excised the head of the femur. He began by making a perpendicular excision over the upper end of the bone, about four inches in length, which cut through the skin and adipose tissue. This was joined by another transverse cut; the soft parts, which were found much thickened and altered in their appearance, were then dissected away from the bone; the limb was next rotated inwards, so as to throw out the upper end of the thigh as much as possible; and the saw was applied below the trochanter major, and the head with that process removed. The head of the bone was much reduced in size, and carious. The cotyloid cavity was found in a healthy condition; in fact, there was hardly any trace of it, it being filled up with new bone. The edges of the wound were brought together by stitches, and the patient was put to bed. No vessel required ligature. In the evening, she complained much of pain, particularly in the knee. She had vomited, in consequence of the chloroform used in the operation.

[After relating the subsequent history of the case, which was completely successful, Mr. Fergusson goes on to say:]

There is little comment needed in such a history as this. Here was a poor girl in the extreme of suffering, every day and hour of her life embittered by pain, to whom there was little prospect of relief by the ordinary aids of surgery, suddenly, and by a very simple proceeding, strictly in accordance with the precepts of modern surgery, rescued from her distress, and in the short space of six weeks so far restored to health, that she could sit up in bed, walk

about on crutches, and move the limb on the affected side, which she had not done for years. But there is no description required to convince you of the benefit conferred on the poor girl. Her appearance during the latter part of her stay in the hospital, (and, I may add, the grateful expressions of her parents), was such as to satisfy us all on this score. Only glance at what would have been the probable career of this case had this treatment not been resorted to. After years of suffering a spontaneous cure might have ensued, or, what is more probable, the continued irritation arising from the disease, or possibly from disease of some other organ, coming on chiefly in consequence of the exhaustion and defective development induced by this continued misery, the patient would have been consigned to an early grave.

Let me now draw your attention to the circumstances which induced me to follow the course pursued in this instance. Here is the cast of the hip of a boy who was under my care in this hospital some years ago. Hip-disease in its most aggravated form was present, the boy was fast dying. There was an opening on the hip through which I could detect the head of the bone more distinctly than I could in the case just narrated. The bone was bare, and presumed to be in a carious condition. There was no evidence of disease elsewhere. I thought the opportunity an admirable one for carrying out those views regarding the treatment of caries, which I believe may be said to be characteristic of the improvement of modern surgery—views which induce the surgeon to remove carious bone by an operation, when and where he can safely do so, so soon as he is satisfied that nature, unaided, is not likely to effect a cure. I thought that if this cause of irritation were removed, the remaining parts would speedily heal, and I resolved to give the boy this chance of relief. I did not, however, come to this resolution on the spur of the moment; it was after mature reflection, and after consultation with my colleagues and others competent to give an opinion on such a question. I had even a precedent for the proceeding, and I beg your particular attention while I read the first case of the kind which ever happened. The case is less known than it ought to be, and such of you as may not have read through the Surgical Dictionary of Samuel Cooper, will not have seen, in the article on Bones by that able and much lamented Professor, the interesting history of this case.

John W., a twin, of delicate make, was born and resided in Westminster. When between four and five years old he suffered from scrofulous inflammation in the left hip-joint, which passed through the stages of elongation, dislocation, and subsequent retraction, and the femur was finally lodged in a very high position on the dorsum of the ilium.

About three years subsequent to the commencement of the disease, and when he was about eight years old, I first saw him. He was much emaciated; several abscesses had formed during this period over and around the diseased structures, leaving many fistulous openings, through which the probe easily detected the surface

of the displaced bone to be in a state of caries; and several small exfoliations had occurred, from the ilium, ischium, and os pubis, over which bones abscesses had formed. In the progress of the disease, the knee of the affected limb had become inverted, and firmly imbedded on the lower and inner part of the opposite thigh, from which position it could not be removed, and every attempt to do so was accompanied with exquisite pain. All further attempts were abandoned, and the limb was left undisturbed. He had now lain three years on the opposite side, with the body considerably incurvated, and without the power of changing his position. A profuse and debilitating discharge was constantly issuing from numerous apertures leading to the carious surface of the displaced bone. In other respects the health of the boy was tolerably good. Reflecting on this poor boy's case, it was evident, that unless the knee could be removed from its firm lodgment on the opposite thigh, he must remain in the position above described for the remainder of his life. And this could only be effected by removing the upper part of the femur, which, from its trifling mobility, induced the belief that a firm union was taking place between its under surface and that of the ilium, with which it had been long in contact, and the form of which was very apparent under the thin integuments with which it was covered. Considering, also, that as an entire destruction of every texture which forms a healthy joint had taken place, no danger could be reasonably entertained from meddling with parts in their existing condition, and attempting the removal of the head of the displaced bone; and further, that the strength of the boy, from the profuse discharge kept up by the caries of the bone, was never likely to be restored,—I was induced, after mature reflection, to propose an operation for the removal of the upper part of the femur, as far as it should be found in a state of caries, which, from the examination with a probe, appeared to extend probably a little lower than the great trochanter. If this could be accomplished, it would set free the lower portion of the bone imbedded on the opposite thigh, and enable me to draw outwards the whole limb, and possibly place the boy in a condition equally favourable with those cases where a similar disease had occurred, and in which a compensatory joint is formed, on which locomotion is effected, with or without the aid of a crutch. I proposed to divide the integuments covering the bone, beginning above its head, which was easily detected, and carry it downward in the centre as low as might be found necessary, and separate the soft parts from the shaft of the bone on either side. I then proposed to divide the bone at the lowest exposed part, with a small saw, and elevate it with a lever, from the dorsum of the ilium. I hoped that the wound would heal over the divided end of the bone, which (now being set free) might be brought into a straight line, and which motion would incline deeply into the wound the end of the divided bone. The wound itself was to be treated as a common incision, with adhesive plaster and bandage, and rigid quietude. My colleague, the late Mr. Morel, saw the case, concurred in the proposition, and offered to be my as-

sistant. The late Mr. William Smith, member for Norwich, and to whom the mother of the boy was well known, informed the late Sir E. Home of the proposed operation. The boy, at his request, was conveyed to St. George's Hospital, and after an examination of the case with his colleagues, a written document, signed by him and them, was given to the mother of the boy, declaring that the contemplated operation would not only be useless, but impracticable, and most likely, if attempted, be attended with loss of life. I was not present at this consultation, and only knew of it by being shown this document, or protest, by the boy's mother. Of course, with such a published declaration, I abandoned the case altogether. After the lapse of some months, Mr. Travers, whilst attending at Mr. Smith's house in the city, to which the boy had been removed with his mother, was requested to look at him; and being told of the proposed operation, by the mother, who was an exceedingly intelligent person, at once saw and understood the principles and plan of the proposition. He subsequently wrote me a note, expressing his entire concurrence in the measure, and kindly offered to assist me in the operation, notwithstanding the formidable protest which had been issued shortly before. Glad of the concurrence of so distinguished an individual, and my own opinion as to its practicability being unchanged, I gladly accepted of the offer. A lodging in Westminster was procured for the boy and his mother. We met in consultation, and an early day was fixed for the operation. In April, 1821, we met, and the boy being placed on a table of convenient height, I proceeded to divide the integuments covering the bone, carrying the incision from an inch above the head, directly along the middle line of the bone, about two inches below the greater trochanter; this was completed at one incision down to the surface of the bone. The integuments were dissected inwards and outwards, thus baring the bone entirely a little lower down than the lesser trochanter, which was distinctly visible. A spatula was now placed under that part of the bone which was intended to be sawn through, so as to protect the structures underneath. This was readily accomplished. A small spatula was then introduced into the space made by the saw, and used as a lever to raise the bone, which, with a little dissection, was removed from the dorsum of the ilium. No vestige of the acetabulum remained, neither was any caries of the ilium discovered. The thigh was now readily brought into a straight line, and the knee liberated from its position on the thigh. The wound was closed with adhesive plaster, and no portion of the bone was left exposed. Splints and an eighteen-tailed bandage were applied, and the limb placed in the straight position. The boy bore the operation well, not more than two ounces of blood were lost. The head, neck, and trochanters were very apparent, the caries being superficial, and not extending lower than the lesser one. The case proceeded very favourably, and in a few weeks every sinuous opening had healed, and also the incision made in the integuments. The patient rapidly acquired strength and flesh. At the end of two months I began to examine the parts,

to ascertain if they had formed any attachment to the surrounding structures, and on attempting to move the limb in different directions, I discovered that the boy himself had the power of raising the thigh upwards, which gradually increased, and finally a very extensive motion was accomplished by the spontaneous action of the muscles. I now proceeded to examine whether he could bear pressure on his foot without inconvenience, which was the case at the expiration of about four months from the time of the operation. He was put on crutches, and in a very short time could bear considerable pressure upon his foot, and at the end of a year could walk on a high stirrup without crutches. Finally, it was clearly ascertained that a new and useful joint had been formed, the boy being able to walk several miles without the use of crutch or stick. He acquired great latitude of motion, except rotating the thigh outwards, and separating the thigh laterally outwards. He was apprenticed to a ladies' shoe-maker, and five years after the operation he became phthisical, and died of diseased lungs, in the Westminster Hospital, The limb was removed, with half the pelvis, and is in the possession of the Royal College of Surgeons; but the parts have not yet been examined, in order to ascertain the changes which had been so usefully employed in giving almost a perfect joint as a compensation for the original. The shaft of the femur appeared to have lost the power of further elongation, for on frequent admeasurement during the life of the patient, it was discovered not to have increased in length. Probably the fact is not generally known, that bones do not increase in length after the amputation of their heads.

[The operation of excision of the head of the femur, is obviously only applicable in a few cases. Mr. Fergusson says:]

I am anxious that you should not misunderstand me about this operation. Do not for an instant suppose that I bring it forward as *the* treatment for hip-disease. I advocate the practice as applicable to certain cases only, and these cases seem to me so few in number, that years may be passed in active practice ere such an instance may come under the surgeon's notice; but when such are met with, I conceive that the principles on which we treat caries, where there seems no disposition to a spontaneous cure, are as eligibly applicable here as in all other parts of the body where we are in the habit of cutting away carious bone.

Lancet, April 7, 1849, *p.* 359.

60.—*On Hip-Disease.* By Professor Syme, Edinburgh.—[After alluding to the severe measures formerly adopted in the treatment of hip-disease, Mr. Syme says:]

The great object now held in view is to prevent motion of the joint, and this is effected by means of mechanical support, in addition to the horizontal posture. The splint employed should not be

limited to the neighbourhood of the hip, but be made to extend over the whole length of the limb and a portion of the trunk; or, in more precise terms, from the sole of the foot to the false ribs, since it is only by preventing motion of the knee, and ankle also, that the hip-joint can be maintained in a state of perfect rest. Together with this local treatment, due attention is of course requisite in regard to the diet and state of the digestive organs. Cod-liver oil, which so remarkably corrects the condition of system that predisposes to derangements of the scrofulous kind, should, at the same time, be freely administered.

Under this simple and gentle mode of treatment, steadily pursued, a large proportion of cases terminate favourably, without any alteration of the limb in regard to form, mobility, or strength. On some comparatively rare occasions, the pain continues without abatement, or increases in severity, and then counter-irritation becomes requisite. For this purpose the actual cautery affords by far the most efficient means, and if employed during the influence of chloroform, is divested of the only objection that can be alleged against its use. The sore established should not exceed three inches in length, and one in breadth.

In the event of suppuration taking place, the abscess should not be opened until it has nearly approached the surface, when an aperture of adequate size, and so situated as to afford a free drain for the discharge, becomes proper. Water-dressing is preferable to ointments and the long splint; or if the limb has been allowed to get into a position which prevents the employment of this, a piece of leather, fashioned to the shape of the hip and thigh, should be still carefully applied, to prevent the irritation attending movement of the joint, great attention being at the same time paid to the maintenance of the patient's general health and strength. The result depends chiefly upon the state of the bones composing the joint. If they are carious, he *must* die; if they are not, he *may* recover. The risk of caries being induced, is proportioned inversely to the age of the patient; so that the prognosis becomes less and less favourable from childhood to maturity.

Some operations have been lately performed in London, with the view of remedying caries of the hip-joint, by cutting out the head of the thigh-bone; but this proceeding must have originated and been conducted in forgetfulness of the well-established pathological fact, that when caries attacks the surface of a joint, it is never limited to one of the bones which compose the articulation. If the articulating surface of the head of the thigh-bone be carious, it follows as a matter of absolute certainty, that the acetabulum must be in a similar condition. But as the acetabulum does not admit of removal in the living body, with any prospect of safety or advantage, no benefit can be derived from taking away a part of the articulation, and therefore, excision of the head of the thigh-bone for caries of the joint should be regarded as no less erroneous in theory than objectionable in practice.

In an old volume of the Lancet it is stated that Mr. Syme cut

out the head of the humerus for disease of the shoulder-joint, leaving the glenoid cavity to "shift for itself"—the fact really being that the patient laboured under necrosis of the upper end of the bone, so that the head was expanded into a thin shell containing an exfoliation, which was removed with the effect of preventing amputation at the shoulder-joint, previously deemed requisite, and enabling the subject of the case, then a boy, to grow up into a strong healthy man. This statement, like others, having no foundation except in the depraved imagination of their authors, was treated with the silence that it deserved, and would not be noticed now unless there seemed a risk of its being stumbled on by some one in search of authorities for bad practice. It is true that Mr. Syme did once cut out the head of the humerus for caries, but in that case the disease, instead of affecting the surface of the bone, which was perfectly sound, had hollowed out the interior substance into a cavity, so that the circumstance of the patient recovering the use of her arm, and enjoying good health for ten years after the operation, in no wise invalidates the rule, that caries of an articulating surface is never limited to one of the bones which compose the joint.

In the London operations the hip-joints must have been either carious or not; and the proceeding, therefore, either useless or unnecessary. That it is possible for patients labouring under disease of the hip-joint to recover, after excision of the head of the thigh-bone, could hardly be doubted by any one who has remarked the shrunk and distorted limbs which result from morbus coxarius, terminating in anchylosis, or examined the preparations illustrative of this condition obtained after death. The scars of old sinuses, and the histories of persons who have regained good health after suffering from hip-disease in their youth, frequently afford evidence that the joint must have suppurated; that the articular structure must have been seriously deranged; that the respective surfaces of the bones must have been more or less extensively denuded of their cartilaginous covering; and that there must have been great displacement before consolidation was accomplished by anchylosis. It is very probable that in some of these persons the head of the thigh bone might have been cut out during the suppurative stage, without preventing recovery, especially if the most careful attention had been subsequently bestowed upon the maintenance of the patient's strength. But in what respect they would have derived benefit from the operation it is not so easy to see.

In his lectures on anatomy, Dr. Barclay used to make frequent mention of those observers who "see what they believe, and do not believe what they see." It is doubtless to some such peculiarity of mental vision that must be ascribed the opinion lately expressed as to the cause of death in a case of the operation in question.* The patient had sunk with the ordinary symptoms of exhaustion, and was found, upon dissection, to have not only the "whole extent of the cotyloid cavity bare and rough," but also the lumbar vertebræ

* Mr. Smith, the Lancet, December 9, 1848, p. 637.

"carious in portions of their bodies;" but yet the operator does not hesitate to affirm that there "is little doubt the real cause of death was the disordered condition of the kidneys!"—this disordered condition being referred from something in the secretion, supposed to have been ascertained by microscopic examination. If all the other cases in which the operation was performed were fully reported, there is reason to believe that the results would appear by no means satisfactory, as anticipated through the sanguine expectation of youth not sufficiently qualified by the sober reflection of experience.

But even in the event of recovery being ever really accomplished, the satisfaction afforded by it must always have the painful drawback of conviction, that as only half of the joint was removed, there could not have been caries present; or, consequently, any warrant for operative interference.

Lancet, March 10, 1849, *p.* 266.

[These remarks have been replied to by Mr. H. Smith. After answering Professor Syme's animadversions upon the cause of death in Mr. Smith's case of excision of the head of the femur, Mr. S. proceeds to say:]

Mr. Syme protests strongly against this operation, and states that "excision of the head of the thigh-bone for caries of the joint, should be regarded as no less erroneous in theory than objectionable in practice." And why? Because he states that the acetabulum is always diseased, and that it will not admit of removal. This is the grand argument with the opponents of this operation; but those who use it are either forgetful or ignorant of the changes which takes place in disease of the hip-joint of long standing. Admitting that caries usually involves the acetabulum to some extent, I nevertheless can affirm, from my own experience and knowledge, that there are certain instances in which serious disease is confined to the head of the femur, whilst none exists in the pelvic side of the joint. In all the successful cases in this country there was no disease of the acetabulum at the time the operations were performed, although there probably had been caries at a previous period of the complaint. In all of them the acetabulum was found to be so contracted as to leave hardly a vestige of the natural cavity, or it was filled up with new bone, which had been thrown out in the process of reparation; and yet with all this, the head of the thigh-bone lay in its abnormal position, in a more or less carious condition, causing all the severe disturbance which was noticed in each case. Such, I apprehend, will be the condition of the parts in those cases in which this operation should be performed; and it is by no means difficult to understand how it happens that the disease in the acetabulum stops, whilst that in the thigh-bone persists. Every surgeon is aware how, in caries of joints, new bone becomes deposited around them; and more especially how the sockets of joints become altered in their shape and appearance. In the instance of disease of the hip, after dislocation, and consequently

after the removal from the socket of a foreign body, (which in fact the carious head of the femur must be,) a reparative process goes on, and new bone fills up the original cavity; whilst the head of the femur, from its large globular form, and from its peculiar texture, rarely takes on this process, but remains in its abnormal situation, acting essentially as a foreign body; therefore I cannot agree with Mr. Syme in considering the operation "erroneous in theory;" and as regards the practical value of the operation, this has been ascertained fully by Mr. White, whose death we have just now to deplore, and Mr. Fergusson; and those who will attentively read the history and symptoms of the cases published by these gentlemen, will be convinced of this; or if any gentleman will take the trouble to pay a visit to King's College Hospital at the present time, he will see striking evidence of the benefit of this operation in the case of the little girl on whom Mr. Fergusson operated about two months since. She is now able to move about the ward, and with the aid of crutches is able to put her foot to the ground.

But, in his attack upon this operation, Mr. Syme has entirely overlooked the main objection to it. He has not hinted at the great liability there is in such cases to the implication of some important organ in the scrofulous disorder, which is, for the most part, the cause of hip-disease. It is here that the main difficulty lies; and here, I am afraid that superficial observers and *too ardent operators* will fall into error. This operation, I am persuaded, might be accomplished in many instances with success, were it not for the fact of co-existent disease. I have at this present moment under my care a little patient in whom the condition of the hip is such, that I should not hesitate to resort to the operation; but the liver is enlarged, I suppose by some scrofulous or fatty deposit. In such an instance, it would, of course, be worse than useless to cut out the head of the femur. Further experience of this proceeding will soon settle the question as regards its propriety; and although the opinion of so eminent an authority as Mr. Syme will, to a great degree, retard its general adoption, at the same time, the opposition of one authority alone, however distinguished, will not, I am sure, in a liberal profession like ours, have the effect of causing the hasty abandonment of a proceeding which has been proved in several instances to be so eminently serviceable to those unfortunate beings who suffer from intractable and incurable disease of the hip-joint.

Lancet, March 17, 1849, *p.* 300.

61.—*On the Treatment of Diseased Joints.*—By J. P. Vincent, Esq.—Among counter-irritating remedies for the treatment of diseased joints and similar maladies, the author assigns the preference to the issue formed by caustic potass. This, he argues, induces a more elaborate train of healthy actions than by any other means. Blistering is less effectual, and to some not less irritating. The issue is particularly useful in disease of the synovial membrane of the knee-joint. Mechanical aids and means are of no use. Rest in bed on the side alone affords relief, and furnishes that state

of quietude which is favourable to the removal of the diseased action. The author has rarely seen the synovial disease proceed to a destructive result, where the case has been actively treated by means of issues. In cases even named ankylosis of the knee-joint, the real seat of the junction is between the patella and the part of the femur in which it is lodged. The extensor muscles are then unable to extend the limb. Would it not be correct to say, rather, that as the disease is mostly seated between projecting points of the femoral condyles and the fore-part of the head of the tibia, as well as inside the *patella*, so the only way to remove these parts from hurtful pressure, is by half bending the knee. Thence the extensor muscles are not permitted to act, because their contraction puts the diseased parts in a painful position, while the flexors instinctively bend the two bones, so as to draw them out of this painful position. If, in this state of the joint, the leg be extended on the thigh, by external means, however gently and however slightly, the flexors instinctively bend the former bone on the latter.

Edinburgh Medical and Surgical Journal, Jan., 1849, 191.

62.—*Observations on Dislocation.*—By J. P. Vincent, Esq.—[Mr. Vincent thinks that what is termed "lifting the head of the bone into the socket," is not a practicable operation.]

The laws of motion show, he adds, that this cannot be done, except by a power little less than that laid upon the line of traction (extension). "I have often seen," he says, "this lifting of the bone attempted, but only to prove the impossibility of accomplishing it." The author properly observes, that the surgeon cannot be said to effect the reduction. His efforts are limited to that of drawing the bone so near the glenoid cavity as to bring the muscles into a situation to remove that association in which all these actions have been accustomed to take place; in other words, in which they all concur to draw the bone into its normal position and retain it there.

[On the subject of old standing luxations, Mr. Vincent observes:]

Some years ago, a patient was brought from the country into St. Bartholomew's Hospital, who had a dislocation of the thigh of some weeks' duration. The first surgeon who saw him had not detected the luxation. After some weeks a second surgeon saw him, and at once knew what had happened. He adopted the usual means for reduction without success. The patient was then, at the end of six weeks, sent to London. I adopted the usual plan of extension from a fixed point, and readily brought the head to the natural range of the joint; but no contrivance could shoot the head of the femur into the acetabulum. I was not contented with one trial; I failed in at least three. This occurrence led me to reflect on the principles on which the treatment of dislocations rests. I am now convinced, that in recent luxations, there is a power independent of the operator, which can, in spite of the force he employs, and in opposition to the direction of it, thrust the bone into its place; so that it is really the absence of this power of muscles that is the

reason why old luxations of this sort are not reduced in the way the operation is usually conducted.

A case presented itself to me, in which the humerus had been luxated seven weeks, extension was conducted in the usual way for a long time, and with the fullest force, and no reduction resulted. I then drew the limb across the chest obliquely, and by this means returned the head of the bone into the glenoid cavity with very little effort. A maid-servant fell down stairs and injured her shoulder; a practitioner living near was sent for, who was not aware it was a luxation. The mistress sent her to me at the end of six weeks; I saw the nature of the case, and took her to the hospital. I first tried the usual plan in vain; I then placed a thick body just in front of the axilla; and by first drawing the arm down, and then carrying it across the chest over the body, the bone slipped easily into its place. The perfect use of the limb was ultimately recovered. Thus it is not by the force of extension, but by the adaptation of appropriate manipulation, that old cases are to be reduced. The bone is easily replaced, and as easily put out again, so that a long observance of immobility must be insisted upon after the reduction, before the limb will become quite restored. Of course there is a limitation to the period of the propriety of trying reduction in old cases, as the power of accommodation is so unfailing, that changes too great may occur, after much time, to justify the interfering with this settled order of things.

I consider that it is highly proper for the security of the joint, that the limb, after a luxation, should be kept at rest for some weeks. A brewer's man was brought to St. Bartholomew's Hospital, with a luxation at one hip and at one shoulder. He was kept in bed a month after the reduction, but allowed to move his arm. When he left, he felt nothing of the hip, but he suffered pain in his shoulder. A female, of the order of fishwomen, was brought to the hospital with dislocation of the shoulder; the bone was reduced, and she chose to go out, and immediately resume her occupation of carrying a basket on her head. The dislocation very soon recurred, and again and again, she applied at the hospital for the same purpose, it slipped out so readily. But as the old method of mere traction was employed, it became more difficult to effect the reduction, so much so that at last she had to stay in the hospital some days before it could be accomplished.

Edinburgh Medical and Surgical Journal, Jan., 1849, *p.* 163.

63.—*On Dislocation of the Head of the Femur backwards.*—By Richard Quain, Esq., Surgeon to the University College Hospital, &c.—[Mr. Quain has arrived at the following conclusions respecting the so-called "dislocation unto the sciatic notch."]

In the ordinary form of the dislocation backwards, the femur does not reach the sciatic notch.

The head of that bone is lodged immediately behind the acetabulum, over the base of the ischiatic spine and opposite to a small part of each of the two sacro-sciatic foramina.

The advanced position of the displaced limb at the knee, and the situation of the foot, "the toe resting against the great toe of the other foot," are not necessarily present in this dislocation.

During the extension made to restore the bone to its place, the thigh is most advantageously directed across the pelvis, so that it shall form a right angle, or nearly a right angle, with the abdomen.

At the same time the limb is to be in a state of abduction. The femur is thus drawn away from the pelvis forwards and outwards.

And the knee is to be bent, the extending force being fixed above this joint.

Medico-Chirurgical Transactions, 1848, *p.* 331.

64. *Case of Dislocation of the Astragalus, in which Reduction was accomplished.*—By MM. Thevenot and Boyer.—As dislocations of the astragalus are very rare, we are induced to record the following, which occurred lately in the practice of M. Thevenot and Lucien Boyer, as published in *L'Union Medicale*. On the 8th of September, 1848, a grazier, thirty-eight years of age, of strong make and robust health, fell from his horse, which had stumbled. He was so much stunned that consciousness was entirely lost for a few minutes, and when he came to his senses, he could not stand upon the right foot. M. Thevenot, who saw him soon after, at once perceived the nature of the mischief, which consisted in a complete displacement of the astragalus inwards. The patient could, however, give no account of the manner in which the foot had turned. M. Lucien Boyer, whose assistance was requested by M. Thévenot, found the parts in the following state. The heel is resting on a pillow; the anterior aspect of the foot forms a right angle with the leg; neither the latter nor the heel present any lengthening or shortening. The sole of the foot is neither adducted nor abducted; the extremity of the same is turned neither inwards nor outwards, but by mere inspection it may be seen that the whole foot has been carried outwards, so that its axis, instead of being continuous with that of the leg, is about an inch external to it. This causes the outer malleolus to be somewhat masked by the external border of the foot. As there is but little swelling around the joint, it is easy to follow the different projections of bone. By running the fingers down the fibula as far as the malleolus, it is ascertained that this bone is perfectly sound; under this malleolus is found a large cavity, into which the integuments may be pushed without meeting with the bottom of it: this cavity is also a little prolonged forwards under the extremity of the tibia, in front of the articular surface of this bone, which circumstance allows the finger to discover that the relative position of tibia and fibula has not been disturbed. This cavity is bounded inferiorly by the superior aspect of the os calcis, which may easily be felt, and the hollow does not seem to contain

much effused fluid. Towards the inner part of the joint, the tibia and malleolus are found intact, and forming a projection on the inner part of the foot. A large, polished, and hard surface is here felt lying immediately under the skin, which latter is powerfully stretched. This surface which looks quite inwards, is manifestly the articular pulley of the astragalus, with its antero-posterior convexity, and its slight concavity from side to side; the margins are likewise easily felt. In front of this surface, the depression formed by the neck of the astragalus is felt, as is also the head of this bone a little further forward. The summit of the inner malleolus is strongly resting on the external surface of the astragalus, which has become superior. The skin in this spot is smooth, stretched, discoloured by the pressure, but not perforated. Nothing abnormal is perceptible on the posterior part of the joint; the tendo-Achillis is not more stretched than usual; the peronæal tendons may be felt behind the outer ankle, but it is impossible to follow the tendons which pass under the inner ankle, on account of the great tightness of the skin over it. Voluntary movements with the foot are impossible, and the motions communicated to it by the hand are very limited in every direction, or rather, there is no motion at all, and great pain when trials are made. No attempt at reduction was made the same evening, it being agreed that they should be put off until the next morning, when chloroform would be used; but, M. Boyer, aware of the difficulties in the way of such a reduction, and considering the solid impaction of the bone, made up his mind, in case of failure, to remove the astragalus. The patient and his friends were therefore apprised of the gravity of the case, and of the possibility of an operation being performed. Meanwhile continuous irrigations of water, at the ordinary temperature, were ordered to the part; a composing draught was given, and a pretty large amount of blood taken from the arm. The next day the foot presented little alteration, except some ecchymosis, particularly on the inner part of the joint; there was very little fever, but the patient was very anxious and uneasy. Anæsthesia was induced by chloroform, and as soon as it was complete, two assistants were desired to make counter-extension on the thigh, the leg being half flexed, with the inner aspect looking upwards. Two other assistants placed each one hand on the heel and the other on the foot, to make extension, and rendered it very effectual by superposing their hands. In spite of the slight hold thus obtained, a considerable lengthening was effected, owing to the relaxed state of the muscles. M. Boyer, seizing then the external part of the joint with the four fingers of each hand, tried to push the astragalus into its place, by pressing it with both his thumbs. The bone was easily driven into the place mode by the extension, but it retained its vicious direction, and the displacement recurred immediately the extension was lessened. Several such attempts having failed, the surgeon seized the moment when the limb was considerably extended, and pushed the external margin of the foot very powerfully with his knee, so as to produce an exaggerated adduction of it, whilst, at the same time, he pressed

with all his might on the superior border of the astragalus with both his thumbs. This contrivance was followed by complete success. The displaced bone turned up, and resumed its wonted position with a loud crack, which was readily felt by all those whose hands were upon the patient, and heard by all unprofessional persons in the room. The deformity had completely disappeared; the hollow under the external malleolus was filled up: under the internal, where the skin had been stretched by the articular surface of the astragalus, a sort of fluctuation was now perceptible, without any tension of the integuments, owing very probably to an effusion of blood. The shape of the foot became again normal; passive and even slight voluntary motion gave no pain. A rather tight roller was applied, from the toes to the leg, and the irrigations were continued. Four days afterwards the irrigations were given up, and a simple roller, wet with lead lotion, was put on. No feverishness occurred; the ecchymosis and the sanguineous effusions were gradually absorbed, and the patient, although not allowed to walk, was, in the space of a month, in a very satisfactory state, and it was hoped that no lameness whatever would be left. Further accounts have shown that these hopes were well founded; the patient is completely cured and walks well. Both the surgeon and his patient may be congratulated on the happy issue of this case. It is clear that the inhalation of chloroform had a large share in the success of the treatment, and although it can hardly be said that without it the reduction would have been impossible, it seems pretty certain that M. Boyer would have had to surmount greater difficulties had no anæsthesia been induced.

Lancet, Dec. 2, 1848, *p.* 613.

65.—*Case of Dislocation of the Astragalus, in which Reduction was accomplished.* — By J. G. Crosse, Esq., Norwich.—[At a meeting of the Norwich Pathological Society,]

Mr. Crosse gave the history of this case, which had been admitted under him in the Norfolk and Norwich Hospital. The patient had been thrown out of a dog-cart, but could give no description of the way in which he fell. Upon his admission the limb presented all the symptoms of dislocation of the astragalus, the sole of the foot being turned inwards, and the foot resting upon its outer edge, while that end of the astragalus which articulates with the os naviculare, was dislocated upwards and outwards, lying just under the skin. Neither tibia nor fibula were fractured. In reducing it, extension was made from the knee direct, and the heel grasped by assistants, who applied their force in this direction with one hand, the other being placed upon the dorsum of the foot, he at the same time endeavouring to favour the return of the bone by immediate pressure on the dislocated end. To these means it yielded but slightly, and finding the tendo-Achillis very tense, he divided it with a tenotomy knife, and upon resuming the extension, the bone

was returned somewhat suddenly into its place after a few minutes, and the shape of the limb quite restored. Chloroform was administered in this case, but not very successfully.

Provincial Medical and Surgical Journal, Dec. 13, 1848, *p.* 693.

66.—*Case of Excision of the Os Calcis.*—By T. M. Greenhow, Esq., Surgeon to the Newcastle-on-Tyne Infirmary.—[At a meeting of the Newcastle Pathological Society,]

Mr. Greenhow, the chairman, related two cases of excision of the os calcis alone, which operation had not to his knowledge been previously performed, and which possessed an advantage over the operations of Mr. Wakley and others, inasmuch as it left the patient the free use of the ankle joint.

The first case was that of a pitman, who was admitted into the infirmary, June 15, with an abscess discharging from the left heel, and the adjacent tissues indurated and swollen. It was stated by the patient, that eight weeks previously, a nail had accidently been thrust into the affected part. There was likewise a distinct sense of fluctuation below the outer malleolus. The foot could be flexed on the leg without causing pain. On introducing a probe, the bone was found exposed and carious: rested ill. Ordered poultices, and twelve grains of Dover's powder every night.

For a period of two months he continued in the same state as on admission, and there being little prospect of amendment, it was determined to remove the diseased os calcis, which operation was accordingly performed on the 15th August, in the following manner:—

First, an incision was made at the internal malleolus, and carried to the centre of the heel, where it communicated with a like incision, extending from the external ankle. A third passed transversely across the sole of the foot, to join the two former. Each malleolar flap was then formed by continuing the incisions along the external and internal margins of the foot. The flaps were dissected back, the tendo Achillis divided, and the knife being introduced between the astragalus and os calcis, the bone was forcibly disarticulated and dissected out.

On the 22d, the report stated that sloughing of the flaps had occurred, with swelling and redness of the integument on the back of the leg. An abscess formed in the calf a few days afterwards, and was opened. From this period he continued to amend in every respect, the abscess having gradually closed up, the tendency to slough in the seat of operation ceased, and the wound cicatrized favourably.

The second case was also that of a pitman, aged 29, who was admitted into the hospital, August 10th, 1848, with disease of the left foot, affecting principally the os calcis, which can be felt in a carious state by a probe introduced through several fistulous apertures.

The disease was stated to have commenced two years and a half previously, with spontaneous inflammation and subsequent abscess.

For this disease he was under surgical treatment in this hospital some months ago, and some portions of diseased os calcis were then removed.

On the 15th August, another portion of diseased bone was removed, the patient being under the influence of chloroform. He continued to progress favourably after the operation, up to September 3rd, by which period the incisions had nearly healed. The foot then became inflamed and tender, accompanied with œdema of the extremity as far as the knee. Considerable sympathetic fever likewise supervened.

The report of the 5th stated that the febrile symptoms had somewhat abated, but the inflammation had extended up to the knee. On the 8th, the erysipelas was principally confined to the foot, attended with œdema, and a greater lividity of the integument. An incision was made along the dorsum of the foot. From this period the inflammation gradually declined, and the wounds healed up, with the exception of several fistulous apertures on each side of the foot, through which the bone (os calcis) was felt extensively diseased.

On Oct. 17th, removal of the diseased os calcis was determined on, and the operation was accordingly performed, in a similar manner to the preceding case.

The report of Nov. 10th stated that the wounds had almost healed up, and that the deformity was not very great.

In the first case the patient retains the use of the ankle-joint, and is already capable of bearing considerably on the affected limb.

Medical Gazette, Dec. 22, 1848, *p.* 1076.

67.—*Case of Dislocation of the Great Toe.*—By Dr. W. Hargrave, Surgeon to the City of Dublin Hospital, &c.—[This was a case of dislocation of the great toe upon the dorsal aspect of its metatarsal bone, occurring in a farm-labourer æt. twenty-three. The accident happened on the 27th Nov., 1846. Reduction was attempted, but failed: in a few days the tendon of the extensor proprius, the internal tendon of the extensor brevis, and the fibrous tissues internal to the joint, were divided by tenotomy, and reduction again attempted, but in vain. An abscess in the ball of the toe followed, and left a fistulous opening through which denuded bone could be felt with the probe. Dr. Hargrave tells us]

This patient now came under the care of Dr. Williams, and on Feb. 24th he performed the following operation to remove the articular surfaces of the phalanx and metatarsal bones: prior to it the patient was submitted to the influence of ether, and continued under its agency till it was completed. An incision was then made parallel to the inner edge of the foot, met by another at right angles, carried transversely outward over the line of the articulation. On dissecting away the integuments, the phalanx was found resting upon the superior and external part of the metatarsal bone, being firmly lodged in the interval between the first and second metatar-

sals. The capsular ligament did not seem opened on its anterior internal aspect, but a probe, passed into the superior fistulous opening, got into the joint, which was next opened from above.

Condition of the ends of the bones:—a small portion of the cartilage of the head of the metatarsal bone, on its superior aspect, was absorbed, equal to a split pea, without the presence of pus, while that portion of the bone on which the phalanx rested was soft and carious. The articular surface of the phalanx was covered with its cartilage, and appeared healthy; the sesamoid bones were also healthy, and fixed in their natural position. The articulating surface of the phalanx was then removed with a strong-bladed scissors, next the head of the metatarsal bone, including the carious portion already noticed, which, owing to its softness, was easily excised with the same instrument. The parts were then adjusted, the wound cleansed, dressed simply, and the patient carried to his bed.

Nothing worthy of note occurred in the healing of the wound, and, on the 10th of April he was permitted to leave his bed and walk about the ward, supported by crutches, but not to bear upon the toe. On the 7th of May succeeding, he was discharged from the hospital in the following condition:—he possessed the power of *extension* and of flexion of the toe; he could bear his weight firmly on the posterior part of the foot, but did not venture on the ball of the toe.

I have had many opportunities of hearing of the progress of this very valuable case since he left the hospital, and am informed that he has completely regained the use of his foot and toe, and is fully able to perform all his duties as an active farm servant.

This luxation presents many points of analogy with that of the first phalanx of the thumb on the dorsum of its metacarpal bone. First, as to the anatomical relations. the articulating heads of the metacarpal and tarsal bones are both very large, each possessing a more or less well-formed neck; each is furnished with two well-marked and fully developed sesamoid bones, into which a number of powerful muscles are inserted. Into the sesamoids of the metasal bone, the internal one has attached to it the abductor pollicis pedis and the inner tendon of the flexor brevis pollicis pedis; the external one has, inserted into it, the external tendon of the flexor brevis, the adductor pollicis pedis, and a portion of the transversus pedis; the lateral ligaments of the articulation are strong and firm, while the capsular one is particularly so on its plantar aspect. The analogy between these two articulations is still carried out in reference to the articulating surface of the first phalanx of the toe, which presents a very superficial cavity, having but a small proportion to that of the corresponding head upon which it moves; and very strong muscles inserted into it, viz., the internal tendon of the extensor pollicis brevis, and the tendon of the extensor proprius pollicis pedis. On the inferior surface of the last phalanx the tendon of that very powerful muscle, the flexor longus, strengthened by its connexion with the flexor digitorum longus communis is inserted into it, while to the internal surface of the first phalanx the

abductor pollicis pedis is attached. Taking the two bones constituting the toe, we have four muscles attached to them, three of which are very powerful,—the proper extensor of the great toe, the long flexor of the great toe, and the abductor.

What was it that opposed the reduction in this case? Nothing but muscular agency, as already indicated. A sufficient purchase was had by the lac, so carefully applied as would have enabled the phalanx to be torn from the foot, if required. By tenotomy the extensor tendons were divided, and, I would also say, the abductor pollicis pedis; still reduction could not be accomplished. As far as muscular opposition was further concerned in this luxation, we must look principally, if not solely, to the long flexor, and its connexion with the flexor longus digitorum pedis, which prevented the removal of the phalanx from the abnormal position into which it was forced by the accident. It may be asked, what would the section of the first-named tendon have effected?

One pathological fact, of great value, has been derived from this case, namely, the perfect restoration of the extensor muscles to their proper functions over the phalanges of the toes, after what may be considered a double operation,—the first being that of tenotomy,—the second, the excision of a portion of the phalanx of the toe with the head of the metatarsal bone. This reparation took place in a comparatively short period,—three months; also a healthy false articulation was formed, compensating for the natural one.

Dublin Quarterly Journal, Feb. 1849, *p.* 58.

68.—*On a New Apparatus for treating Lateral Curvature.*—By Dr. W. J. Little, Physician to the London Hospital, &c.—[Dr. Little states that he believes an eclectic plan of treatment to be preferable to any of the methods which have been exclusively recommended; and describes an apparatus invented by the Drs. Brown, of Boston, U. S., as very useful in certain cases. He says:]

The remarks offered will apply to the more frequent form of the complaint—that in which the spine in the dorsal region inclines to the right, and in the lumbar region to the left side.

The end proposed by the best designers of mechanical aid for restoration of ordinary lateral curvature has appeared to be, the application of pressure against the convex aspects of the spinal curves, from which the *mechanical* straightening of the column has been anticipated. *Passive* consolidation of the component parts of the spinal column has been expected to result from the improved adaptation. Some practitioners, more physiological in their views, have simultaneously endeavoured, by their instrumental appliances, to improve the mode of action, and the respective powers of the muscular parts of the column. Amongst the last-mentioned class, Tavernier, by the introduction of the lever-belt that bears his name, ranks, in my opinion, as one of the most successful. The plan of the Drs. Brown subserves this double object—of applying support

or pressure against the convex aspects of the curves, and of exciting the muscles in a manner that will favour the restoration of their power of maintaining the equilibrium of the column, and consequently its straightness.

[The apparatus, which is termed "The Horizontal Lever-Belt," consists of a padded plate of steel, of suitable form, to press upon the projecting ribs beneath the axilla, and another plate to fit upon the ilium of the opposite side; these plates are secured in position and fastened to each other by various straps. To the iliac plate is attached, by a hinge which moves perpendicularly, a rod eighteen inches long, having a weight at its extremity; and this weighted extremity of the rod is attached by two bands of webbing to the first mentioned or *costal* plate. One of these bands passes in front of the chest and another behind it, and the two are held widely apart by a rod passing between them, so that the chest itself is not pressed upon. The effect of this apparatus when applied, is]

To compress the spinal column at the convexities of the unnatural curves; and thus, by its mechanical action, fulfil the first indication—viz., that of endeavouring mechanically to straighten the column. It is equally apparent that the weight attached to the extremity of the lever, acting at so great a distance from the fulcrum, will incline the body to gravitate towards the left side, and by this means exercise a powerful influence in exciting the muscles upon the right side of the trunk to resist this lateral tendency, and cause it to assume the erect position. In contemplating the mode of action of the muscles of the right side of the trunk whilst resisting the lever, we may regard them as a continuous band, formed of the right scaleni, intercostales, and abdominal muscles. The united action of these muscles results in a pressure exercised upon the right side of the vertebral column through the intervention of the ribs. The powerful muscles occupying the right posterior groove of the back do not remain idle. The inferior portion of this mass of fibres,—that which occupies, on the right side, the concavity of the lumbar curve,—would act unfavourably for the restoration of the spine, were it not that the left side of the lumbar vertebræ is the fulcrum upon which the lever acts. These vertebræ are gradually pressed towards the right side into a more natural position; the sacro-lumbalis, which, but for this gradual rectification of the lumbar portion of the column, would, if excited to greater activity, tend to increase the deformity, now opposes no effective resistance to restoration. The excited activity of the superior portion of the muscular mass is eminently beneficial, as by its means a living pressure is maintained upon the part of the column that has most lapsed from the right line—namely, the right dorsal region. The restoration of this part is simultaneously facilitated by the pressure exercised through the intervention of the pad acting against the ribs of the right side.

The stimulus to increased activity is not confined to the muscles of the right side of the back, those of the left participating in the

benefit; thus, one of the most marked results of the application of the horizontal lever is an immediate elevation of the left shoulder, a part commonly depressed in lateral curvature, (to the right side.) A decided improvement in the attitude is observable; the muscles extending from the left side of the neck to the corresponding shoulder, elevate this part; and a cessation of the inert condition usually perceptible in the structures connected with, and covering the posterior surface of, the left ribs, ensues. Amongst the muscles here prompted to renewed vigour, the trapezius holds a prominent rank, and doubtless, by its situation, bulk, and corresponding power, tends to the rectification of the upper portion of the column.

[In treating lateral curvature, we should remember that it is essentially a chronic affection, and therefore, as Dr. Little observes:]

The value of the horizontal lever, as indeed of other plans of treatment of spinal curvature, cannot be duly estimated by a limited trial of its operation. Its use should be continued during months, combined with other appropriate means of treatment; and when the infirmity is not merely arrested, but the progressive deterioration of the spinal column, and sometimes of the patient's health, gives place to amendment, the patient and attendant will be encouraged to perseverance. Nicety of application of the portions of which the apparatus is composed is indispensable. The pieces intended for the projecting ribs and for the lumbar vertebræ, or pelvis, require adaptation to the varying forms of the parts in different individuals. The weight attached to the lever must be adjusted to the age and strength of the patient, and to the obvious effect upon the muscles of the back; I have found that it may vary from four ounces to two or three pounds. The cases in which the cervical and lumbar curves are either of them slight or altogether wanting,—in which the column is still flexible,—in which the deviation diminishes whilst the patient assumes the prone position,—in young subjects, in whom the growth of the frame is incomplete, and in whom the general health, although perhaps weakly, is free from any decided constitutional disease,—are those for which the horizontal lever is most suitable. These, indeed, are the cases for which any other beneficial plans of treatment advocated from the time of Andry to the present day are available.

Lancet, Feb. 17, 1849, *p.* 178.

69.—*Operation for the Removal of Loose Cartilages in the Elbow-Joint.*—By Samuel Solly, Esq., F.R.S., Assistant Surgeon at St. Thomas's Hospital, &c.—[Mr. Solly's patient was left after a severe attack of rheumatism, with pain and swelling of the elbow-joint. This was treated by rest, counter-irritation, iodine, and mercurials; and on the subsidence of the general swelling, there was found a small circumscribed swelling, which appeared to be a sac containing several hard and moveable bodies, situated above and behind the inner condyle. It was determined to remove these bodies by operation. Mr. Solly says:]

I made an incision about one inch in length over the swelling above the inner condyle, dividing the skin, fascia, and synovial membrane, till I exposed the loose cartilages, for such they proved to be. They were easily pressed out of the opening. I introduced my little finger into the sac, and felt the articulating surfaces of the humerus and radius, and I thought I felt an irregular surface on the ridge between the radius and ulna, like an attached portion of false cartilage, but there were no more loose bodies in the joint. Those removed were eight in number. I brought the edges of the wound into close apposition, put one suture in through the skin, and the isinglass plaister over it. I placed a pasteboard splint on the back of the joint, fixing it to the upper and fore arm, so as to prevent the slightest motion in the joint. The wound was quite healed in forty-eight hours, but I kept the joint at rest for a week; after this he was able to move it without the slightest pain—indeed, he did not suffer in any way after the operation, except for the confinement occasioned by the splint. I have seen him repeatedly since he left the hospital, and he has remained quite well and resumed his occupation on the river.

[Mr. G. RAINEY gives the following account of the mode in which these loose bodies originate. He says:]

I believe no satisfactory explanation has yet been given of the manner in which these loose bodies are formed in joints, although I think their origin, and the circumstance of their becoming loose in a joint will appear obvious, by a reference to the remarkable character of the epithelium in joints, in the thecæ of tendons, and in mucous bursæ. This epithelium was described by me in a paper communicated to the Royal Society by Mr. Simon about three years since, but which has not been published. A few general observations upon this structure will suffice. It is situated in those parts of a joint, theca, or bursa, where it is least exposed to pressure. It consists of loops and convolutions of capillaries of various degrees of complexity proceeding from the surrounding vessels, and projecting into the synovial cavity. These capillaries are enclosed in sacculi of basement membrane, studded with minute oval cellules: from the sacculi enclosing the capillaries, numerous other sacculi, into which no capillaries enter, proceed: these are of various forms and sizes, but generally they are attached to the primitive sacculus by an extremely long and slender filament of fibrous tissue, resembling the petiole of a leaf, the secondary sacculi being its expansion. Sometimes there are several series of these sacculi attached, one series to another, exhibiting an arborescent appearance, but in every instance the secondary sacculi are extra-vascular.

I have found this kind of secretory apparatus in all the joints, as for instance the finger joints, the knee, shoulder, &c. Now this being the apparatus by which synovia is elaborated in all parts in which this fluid is found, and the bodies just described being found in these situations, they may be inferred to be the product of disease in these structures; the cellules of these fringes, in the place of ela-

borating synovia from the blood, producing, under the influence of morbid action, other products, such as cartilage, which becomes converted into imperfectly formed bone. The fact of the secondary sacculi being connected to the primary by extremely slender pedunculi, will suffice to explain the reason why these bodies may become formed in the first instance, the pedicle serving both to keep them attached, and to convey the material from the blood necessary for their development, until they acquire a certain size; but afterwards, from its tenuity, becoming no longer capable of holding them, it breaks, and the bodies become loose, and most probably cease to enlarge.

Monthly Journal, May, 1849, *p.* 745.

70.—*Case of Amputation at the Ankle-Joint.*—By James Spence, Esq.—[In this case Mr. Spence modified Syme's operation, by making the plantar flap from above downwards, instead of raising it in the opposite direction. The disease was strumous, and occurred in a girl ten years old. Mr. Spence says:]

I employed a modification of Mr. Syme's plan of operation, suggested to me by my friend Mr. Goodsir. This modification consists in first disarticulating, and then carrying the knife downwards behind the os calcis, so as to form the plantar flap from the heel from above downwards, instead of raising and dissecting that flap upwards. Chloroform having been given, I commenced in the usual manner, with an incision across the anterior aspect of the joint, from the external to the internal malleolus. The knife was then carried deeply across the plantar aspect of the heel, round from the internal to the external malleolus, where the incisions commenced. The form of the flap being thus marked out, I disarticulated by dividing first the external lateral ligament, and then carrying my knife close to the bone I divided the internal lateral ligament, and separated the soft parts on the inner side of the foot, which was now turned forwards. The tendo Achillis was then divided, and by carrying the knife close round the back part and sides of the os calcis, that bone was readily turned out from the plantar flap. The malleoli were removed by the saw, and the operation completed in the usual manner. Two arteries only required to be secured, one towards the outer side of the plantar flap, and the anterior tibial artery. After closing the wound by interrupted suture, I dressed the stump with two long and broad strips of lint, arranged in a crucial manner, and secured by a circular slip, so as to support and press the flap against the surface of the bones, and the patient was put to bed. This method I have used in several cases of amputation, and found it quite as effectual in supporting the flaps as compresses and bandages. It is more simple, and by keeping the lint slightly moist with tepid water, it can be easily removed in case of hemorrhage occurring. The subsequent treatment is thus facilitated, and much pain is saved to the patient.

On examining the foot, the soft parts around the ankle joint were found thickened and infiltrated, and the sinuses from the small ul-

cers opened into the joint. The articular cartilages covering the lower end of the tibia, and corresponding surface of the astragalus, were affected with the brown degeneration, and extensively ulcerated. The bones were denuded, and carious at several points. A section of the os calcis, shewed its external fibrous plate reduced to a very thin shell. The interior was occupied by the soft greasy degeneration common in scrofulous bones, and contained a small portion of dead cancellated texture lying loose in the centre.

It is unnecessary to give the daily history of the case, as every thing went on favourably; the incisions healed rapidly; the treatment required was principally for the old ulceration of the soft parts, which continued very intractable; it healed well for a day or two at first, and then again became sluggish; under the use of nitrate of silver, however, it began to improve more steadily.

Remarks.—The plan of operation adopted in this case, seems to have the advantage of being performed more rapidly and with less twisting and manipulation of the plantar flap, than when we dissect that flap from below upwards, as in the ordinary method. The form, position, and connexions of the flap, are the same in both methods. In other words, it seems a simpler and more easy method of producing the same result.

The great advantages of the method advocated by Mr. Syme, for amputation at the ankle, over all others hitherto proposed, consist, I think, 1st, in forming the flap from the elastic, fatty, and cutaneous tissues of the heel, parts adapted by nature to sustain pressure; and, 2d, from the lateral connexions of the flap preserving the vessels on both the internal and external sides of the ankle —thus insuring a sufficient vascular supply. Any rapidity or ease in operating, which sacrificed either of these advantages would be too dearly purchased, and most of the plans hitherto proposed, do so to some extent. Thus, for example, the plan of a large flap cut from the internal malleolar and plantar region, as proposed by M. Sédillot and others, besides sacrificing a portion of the plantar tissue, has, moreover, the great disadvantage of dividing the external lateral vascular connexions, and so, to a certain extent, endangering the vitality of the flap. For it is an anatomical fact, familiar to every one accustomed to dissect minute vascular preparations of the foot, and one which ought not to be lost sight of, that the plantar tissues of the heel which form the flap, receive at least quite as much of their arterial supply from the terminal ramifications of the external malleolar, and interosseal branches of the peroneal artery at the ankle, as from the posterior tibial above its division into the plantar arteries, and it is of importance to the vitality of the flap to preserve these sources of supply as well as that from the posterior tibial.

The plan of operation, or rather the modification of Mr. Syme's plan used in the foregoing case, preserves all the advantages of his method, whilst I certainly found it more easy and rapid of execution than when I have operated in the usual manner by dissecting the flap from below upwards, before disarticulating.

Monthly Journal, May, 1849, *p.* 742.

71.—*Observations on Necrosis.*—By J. P. Vincent, Esq.—The film-like membrane, the periosteum in its natural state, appearing to be of low organisation,—so low in sensation, that it hardly shows signs of feeling in amputation, when the stimulus for repair is brought into full operation by subsiding all derangements into the orderly course of new functions,—is then endowed with the power of passing into one of the most exquisitely organised structures of the body. It is then highly vascular, and acutely sensitive, and fleshy in its substance. It is now abounding with life, and full of activity for the purpose for which it has passed into this state. When the surgeon is thus aided by this astonishing machinery, he is imperatively called upon to do all he can to keep up its productive energy, and he is to do nothing that can interfere with the healthful process. But how few are there who view with tenderness the quiet but effective operations that are going on! How many ca ses are spoiled by restless interference!

The cases of diseased bone which present at the hospital are very numerous. It is possible to assign conditions in the state of the parts that may lead to a clear distinction into classes. But, probably, necrosis is essentially an affection of the periosteum in its various changes, and in the result of those changes upon the bones. The influence which seems to me to have the greatest sway in causing periostitis, is cold and wet, when the parts over bones are exposed to these impressions.

A gentleman built for himself a large house, and constructed a bath next to his study. His delight was to bathe even in cold weather. The room was not secured from draughts; and one day, in cold weather, he sensibly felt, whilst uncovered and wet, the blast pass over his right shoulder. He suffered most acute pain in the upper part of the humerus, with general swelling of the limb, and still greater pain when the deeper parts were pressed. He soon came to his house in London, and ultimately recovered, even without the formation of abscess; but the thickening of the periosteum, which was left when the general swelling was removed, certified the nature of the attack.

An elderly lady seated herself in a garden chair after rain; afterwards she felt great pain in the seat. Some months after I saw her and found a sinus, and at the bottom a small piece of necrosed bone of the ischium.

I have been able to trace the attack very often, in the children of the peasantry, to their lying about in wet grass. The attack is always that of acute inflammation, but varying much in degree; and the constitutional symptoms are often very severe—so much so, as often to make the the nature of the complaint doubtful. The course of the very acute form is to pass on to suppuration, and the pus may be formed under the periosteum, but also sometimes in the interspaces of the muscles, and of course always under the fascia.

I am not able to decide whether the very acute attack is that which terminates most readily in the healthy functions of reparation. At all events there are two states of periostitis, changing the

condition of the bone in two ways: the one where the whole energy of the periosteum is called forth, where the increased action subsides into a transitional state of the membrane, so that it assumes the greatest display of formative capabilities, by which it executes, unerringly and promptly, its conservative protection to the limb. The beauty and the efficacy of its accomplishment must strike all with admiration. This is that state which has the name of necrosis properly applied to it. The original bone is dead, and the periosteum commences its new function of supplying an equivalent by inclosing the dead with a living case, which is to be at once a new and perfect bone, as well as an immediate substitute. The rapidity of this formation is proved by the almost sudden shifting of the attachment of the muscles. The bulky muscles of the limb, which at one moment are attached to the old bone, are at another connected with the new structure, and not the smallest interval is known to pass of their being unattached to either. The muscles suffer no moment to elapse in which they cannot move and support the limb. All their insertions remain in perfect order and integrity.

This is that state of necrosis where every provision is made for the ultimate state of perfection of the limb. The wall is quickly strong enough to sustain the weight of the body. In its construction, in order to guard against that very overcoming pain, which only one drop of matter pent up in bone produces, openings are left in the walls, and also in the integuments, for the escape of it. With the aid of such effectual powers of reparation, the sequestrum goes on to be detached. All this may require a lengthened time to be perfected. Notwithstanding the vigorous proceedings going on for the safety of the limb, injudicious surgery will often spoil the happy work that is advancing. I have often seen an operation executed which has done nothing but give the greatest pain to the devoted patient, and loss of blood produced in cutting through the periosteum. I am clear that it is quite futile to attempt any operation, except the sequestrum be quite detached; for if the least part be still connected with the living bone, this keeps up nearly as much irritation as the whole sequestrum.

But the persisting powers of reparation do not terminate in detaching the sequestrum from the living parts; they carry on the work to eject it from its case. In speaking of the cloacæ, I might have said that it would be expected that these should be found at those parts where the muscles are not attached. The same provision is observed in the skull, if matter form slowly upon the *dura mater;* in venereal necrosis especially, the bone is perforated by many openings, so that the patient suffers none of those evils that occur in accidents of this part, where the matter is more quickly deposited. In furtherance, then, of relieving the limb from the sequestrum, I have seen cases in which, when this has been quite detached and one end of it has been near an opening, at the same time that the opening has increased in size, the end of the dead bone has protruded into it, and gradually started out, and becoming ultimately completely dislodged. I have often watched a sequestrum in its

advance, and been able to appreciate its daily alteration in position, so quickly has it taken place; still more, with equal rapidity the new bone has subsided into its diminished and proper size, as the sequestrum was discharged. These are beautiful examples of the powers of nature. Why, then, may not the surgeon leave some operations to her better workmanship?

These cases also prove that there is a power, beside muscular action, which can put in motion parts of the animal structure. I have very often seen, as I before said, the necrosed bone, day by day protrude with such surprising rapidity, that each day's work was quite apparent. I have seen the greater part of a tibia, which, when once started into the opening, has been quickly and completely extruded. I had a child in the hospital, not long since, about four years of age, in whom the whole femur, from the condyles to the head, came clear away. It is gratifying to see, that as the dead bone projects outwards from its case at the one end, so, at the other end, the new bone at once, and rapidly, resumes the lessened bulk and form of its proper dimensions. This child, very quickly after the sequestrum was quite discharged, was able to run about the ward. There can be no doubt that there are powerful agents, which can relieve the animal structures, and expel offending bodies, without the intervention of muscular motion. We have several analogies in the course of pathological observations that carry with them the truth of this principle. Even in many of the mere exfoliations of bone, where it is well buried in deep parts, the exfoliated portion will rise and appear at the surface of the wound. Its presence becomes the stimulus for its extrusion, just as the particle of dust from under the eyelid. It is an example of the simple stimulus for relief. In all the varieties of necrosis, the surgeon is called upon to treat with caution and reserve the case, if he weighs duly his responsibility to the patient.

Edinburgh Medical and Surgical Journal, Jan. 1849, *p.* 176.

72.—*Use of Collodion in Compound Fracture.*—The value of solution of gun-cotton was tested in a case in St. Vincent's Hospital,—a compound dislocation of the ankle, with the usual fracture of the fibula. The tibia protruded through a long transverse wound at the inner ankle. The bone was easily reduced; but retraction of the divided integument kept the edges of the wound about an inch apart. After careful and gentle manipulation, aided by suitable position, Dr. O'Ferrall succeeded in bringing the posterior commissure of the wound together, and sealed it with the solution. Another point was then made to touch, and was sealed like the former. Eventually, the entire wound was thus sealed up, although synovia mixed with blood had been freely oozing before. It is now the 6th day:—there is no inflammatory symptom, and the patient rests very well. The event of this case will be interesting in a practical point of view.

Medical Times, Dec. 2, 1848, *p.* 130.

ORGANS OF CIRCULATION.

73.—ON THE TREATMENT OF WOUNDED ARTERIES.

By G. J. Guthrie, Esq., F.R.S., &c.

[Referring to the improvement introduced by Hunter in the operation for aneurism, Mr. Guthrie observes:]

The Hunterian theory may be presumed to imply:

1. That the artery is in general sound at the part in the front of the thigh now selected for operation, whilst it is usually unsound in the popliteal space behind, or in the ham, where Desault operated, and Anel recommended it to be done, and which operation is now abandoned in France, as well as in England.

2. That a ligature can be readily placed upon it in the fore part of the thigh, and will usually be followed by success as far as concerns the obliteration of the artery immediately below the part on which it is applied.

3. That the limb being aneurismal, the collateral branches had begun to enlarge, so as to be better able to carry on the circulation, after the supply of blood by the main trunk has been cut off.

4. That no branches of importance are usually given off between the ligature on the artery on the fore part of the thigh and the sac of the aneurism in the ham.

5. That if such branches were ever given off, and brought the blood from their collateral communications back into the main artery below the ligature, and thence into the sac, so as to renew its pulsatory movements, they would ultimately disappear, from the impelling force not being sufficient to prevent a gradual coagulation taking place, which would soon fill up the cavity of the sac, and thus prevent its further enlargement; at which stationary point a process of removal by absorption would begin, and continue until the diseased sac, with its contents, had diminished, if not entirely disappeared, leaving only a trace behind of its former existence. The process, thus described, being frequently assisted (as I especially pointed out in my work on the Diseases of Arteries) by a commencing obliteration of the artery immediately below the aneurism. The essential point in this theory which has immortalized the name of Hunter in surgery, depends on the integrity of the aneurismal sac, which ultimately retains, as a general rule, subject to rare exceptions, any blood which may be brought into it, either by the collateral branches from above, or from below by what may be called regurgitation, until it has become coagulated; when the sac is so filled up that no more blood can pass into it to cause its further distention, or any ulterior evil.

This theory of Mr. Hunter, then so new, so beautiful in itself, was eagerly embraced by nearly all the civilized world; and surgeons were not content with applying it to cases of diseased or aneurismal

arteries, to which it is especially applicable, but they extended it indiscriminately to cases of wounded arteries, to which it is inapplicable, and in which, as I maintain, it only succeeds as a matter of accident, not of principle.

[Mr. Guthrie then proceeds to speak of the improvement which he himself introduced in the treatment of wounded arteries. He says:]

The essential features of the theory I call mine, are—

1. That the artery at the wounded part is free from previous disease, and may be expected to take on those healthy actions which, after the application of a ligature, lead to the obliteration of its canal, and the consequent suppression of hemorrhage.

2. That the circulation of the blood by the collateral branches is less free in a sound limb, than in one which has suffered during several weeks from the formation of an aneurism.

3. That this freedom of circulation is less in the *lower* than in the *upper* extremity, under all circumstances.

4. That mortification of the foot and leg, and often of the whole limb, followed by the death of the person, is a common occurrence after a ligature has been placed high up on the artery in the thigh, in consequence of a wound, whilst it is not so common an occurrence when such operation is performed in the same place for an aneurism of several weeks' duration. If the vein be also wounded, mortification is almost inevitable.

5. That mortification of the hand and arm rarely follows the application of a ligature to the artery of the *upper* extremity in any part of its course, however near the heart.

6. That when the collateral vessels are capable of carrying on the circulation through the lower extremity, the lower end of the divided artery bleeds dark or venous-coloured blood, whilst its upper end bleeds scarlet or arterial-coloured blood. In the upper extremity the colour of the blood from the lower end of the divided artery is little altered—a consequence of the greater freedom of anastomoses, or of the freer collateral circulation in the upper extremity. Facts of the greatest importance in surgery.

7. That whenever the collateral vessels are not capable of carrying on the circulation of a limb, mortification or death of the part ensues; and *that whenever this collateral circulation is sufficient to maintain the life of the limb, blood must pass into the artery below the wound, and must, as a general rule, pass up and out through the lower end of the divided artery, unless prevented by some accidental circumstance, forming an exception to the rule, but not the rule itself.*

8. That the collateral branches are capable of bringing blood into the artery above the aneurismal sac and between it and the ligature, is admitted in the Hunterian theory, which blood the aneurismal sac receives, and usually retains. When the artery is a wounded artery, and the ligature is applied at a distance above the wound, blood is often brought into it below the ligature in a similar manner, but as there is *no aneurismal sac* to receive and retain

it, the patient bleeds, perhaps to death, unless surgery come to his assistance.

9. The presence of an aneurismal sac in one case, and its absence in the other, is the essential difference destructive of the Hunterian theory for the treatment of aneurism being applicable to that of wounded arteries.

10. The absence of the aneurismal sac renders the application of two ligatures necessary, one on each end of a divided artery, or one above and one below the wound if the artery should not be divided, constituting the most essential feature of my theory, and the principal point to be attended to in the treatment of wounded arteries.

11. The processes for the natural suppression of hemorrhage being different in the upper and lower ends of an artery, are less capable of resistance in the lower end. This end frequently yields to the pressure of the blood regurgitating from below, and renews a bleeding which may have been suppressed for weeks, unless its closure has been rendered more permanent by the application of a ligature.

The essential parts of this theory being thus explained, I may be permitted to add that its validity has been acknowledged practically by the greater part of the surgical profession throughout Europe and America.

Lancet, Jan. 20, 1849, *p.* 55.

[The following points, Mr. Guthrie considers, were demonstrated during the French and Peninsular wars, and still remain incontrovertible.]

1. That an artery as large as the femoral is capable, when divided, of taking on certain processes, which will cause a suppression of hemorrhage from its upper end, and which suppression is usually permanent.

2. That the bleeding from the lower end of the same vessel is less certainly and less permanently restrained, and not by exactly similar processes; the blood issuing from the lower end of the femoral artery being for the first few days of a venous colour. It is less so from the axillary artery, in consequence of the collateral circulation in the upper being more free than in the lower extremity, and the change of colour is sometimes not perceptible in the smaller arteries of the forearm, although it is generally so in those of the leg.

3. That this bleeding from the lower end of the vessel, which is more or less of a venous colour, and issues in a continuous stream, may be restrained by compression properly made on, and in the course of, the lower part of the wounded artery; but that in no instance should recourse be had to a ligature on a distant part of the artery above the seat of injury, until every other possible effort to arrest the hemorrhage has failed.

Lancet, March 24, 1849, *p.* 305.

When a wound occurs in the thigh, implicating the femoral artery or its branches, and the bleeding cannot be *restrained* by a moderate, but regulated compression on the trunk of the vessel, and perhaps on the injured part, recourse should be had to an operation, by which both ends of the injured artery may be secured by ligature; and the *impracticability* of doing this should be ascertained only by the failure of the attempt. If the lower end of the artery cannot be found at the time, the upper only bleeding, a gentle compression maintained upon its track may prevent mischief; but if dark-coloured blood should flow from the wound, which may be expected to come from the lower end of the artery, and compression does not suffice to suppress the hemorrhage, the bleeding end of the vessel must be exposed, and as it will be readily seen, should be secured near to its extremity.

Lancet, Feb. 3, 1849, *p.* 117.

74.—CASES OF SECONDARY HEMORRHAGE TREATED BY LIGATURE AT A DISTANCE FROM THE SEAT OF INJURY.

By G. Critchett, Esq., Surgeon to the London Hospital, &c.

[The first case was that of a man aged 67, whose hand was lacerated by the bursting of a gun, so that the thumb had to be removed at the metacarpal joint. We are told that]

After the operation, the patient went on very favourably for a week; a generous diet was allowed throughout; the ligatures came away, and the wound, which was of such a nature as to preclude the possibility of union by the first intention, was covered by healthy granulations. Suddenly, on the eighth day, without any appreciable cause, arterial hemorrhage, and that, too, in a considerable stream, considering the situation of the wound, came on; pressure was tried, and succeeded in temporarily arresting the flow of blood, but in two days it again returned; styptics were now combined with pressure, but they also failed. Hemorrhage having recurred at three or four intervals, the patient's strength was reduced to a very low ebb; the house-surgeon now tied the radial artery, but this did not control the bleeding in the slightest degree. It was at this time that I was first called to see the case; bleeding was still going on, and it was evident that the vital powers were rapidly failing. On examining the wound I found a bleeding surface; it was impossible to isolate any point from which it proceeded, and even on making any attempt to seize upon any part, it broke away under the forceps. The alternative then lay between removing the hand and trying the effect of a ligature upon the brachial artery. I chose the latter. The artery was tied about the middle of the arm without difficulty, the bleeding immediately ceased, and never recurred; there was no lowering of temperature to be de-

tected in the forearm and hand after the operation. The patient was some time in recovering his strength, but the ligature came away on the tenth day; the wounds both of the hand and the arm healed kindly, and in about two months from the time of the operation he left the hospital convalescent.

[The subject of the next case was a woman, who had received an incised wound on the inner side of the elbow, by which the median-basilic vein was divided, the fascia, and consequently the artery, being uninjured. Suppuration took place, and on the fifth day profuse arterial hemorrhage occurred, and was arrested by pressure. Again and again the bleeding recurred, and was stopped in a similar manner. On the eleventh day the wound was enlarged, and the bleeding vessel unsuccessfully sought for. Mr. Critchett says:]

Late on the evening of the same day, I had just left the hospital, in company with Mr. Hamilton, when we were called back in great haste, to see this poor woman, in whom a fresh outburst of arterial blood had taken place. The house surgeon had applied a tourniquet, as a temporary measure. It was now evident that something must be done, or the patient would sink. I never saw a case in which the vital spark was more flickering. There was no pulse; the pallor was extreme; the surface cold and clammy; the white lips quivered; the eye was glazed; and it seemed as if life was ebbing fast; one more jet of arterial blood, and all must be over. At this critical moment, seeing the difficulty of finding the vessel, the diseased condition of the parts in its vicinity, and the absolute necessity of avoiding any further loss of blood, we agreed that, without removing the pressure, it was advisable to secure the humeral artery about the middle of the arm, where the parts were in a healthy condition. This operation Mr. Hamilton performed, and since that time there has been no return of hemorrhage. The ligature came away on the tenth day, and both wounds, though for some time they put on an unhealthy aspect, at length healed, and the patient left the hospital perfectly well. I need hardly say that stimuli were freely given during the progress of the cure.

[The next case was one of compound fracture of the leg, in a man 44 years old, in which profuse arterial hemorrhage took place for the first time about a fortnight after the accident; and though arrested by cold and pressure, recurred at intervals of a few days. After the fourth attack, and when the patient was very much exhausted, Mr. Critchett was sent for; he tells us:]

Some of my senior colleagues being at hand, a consultation was held. Opinions were divided between amputation and tying the femoral artery: my own bias being in favour of the latter proceeding; it was ultimately determined upon that the artery should be tied. I adopted this plan because I thought the man's constitutional powers good, his age favourable; the fracture, though compound, was not believed to be comminuted by those who examined

it on his admission, and the general aspect of the limb was promising; and also, I felt, that whilst giving the man the chance of recovery with a useful limb, the ulterior measure of amputation was not precluded. The man was too faint to be taken from bed; he was therefore merely moved to the edge, the bed being turned round to the window. An incision about five inches in length was made on the Sartorius muscle, which, being exposed, was turned aside, and the artery was readily seen in its sheath beneath it, and a ligature easily passed round it, at about the usual place. Perhaps I may here venture, though a young surgeon, to offer a few remarks upon the subject of cutting down upon arteries. The first point to be attended to is to keep a few prominent landmarks in the mind, and not to allow the attention to be diverted from them; the next is, not to disturb the parts more than you can possibly help, so as to preserve their relative position until the vessel is brought into view; the last and most important of all is the one that was so strongly insisted upon by Mr. Liston—viz., the cutting boldly down upon the vessel as you would do in the dead subject, and the not having recourse to directors and blunt instruments until the artery is exposed. Over-caution is far more likely to lead to embarrassment than a fair amount of boldness; a large artery has thick coats, and is not likely to be wounded by a scalpel, but is very liable to be bruised by blunt instruments, which are also very apt to confuse and obscure the parts. I have practically found these rules so useful in the few cases in which I have had an opportunity of testing them, that I venture to mention them to this society.

After the operation, the limb was enveloped in wool; there was a slight fall in the temperature of the limb, but the report on the second day after the operation is: limb warm, and feels comfortable; there has been no more hemorrhage; healthy discharge from the wound.

[About fifty days after the ligature of the artery, hemorrhage came on again, and the limb had to be amputated. Mr. Critchett makes the following remarks on these cases:]

These three cases appear to me to illustrate some interesting points of surgery, respecting which authorities are not perfectly agreed. Mr. Guthrie, in his highly practical lectures on the treatment of wounds, and injuries of arteries, puts forth as a strong argument against tying an artery at a distance from the seat of injury, the imminent danger thereby incurred of inducing sloughing of the parts. He says, "If the femoral artery be punctured near the groin, and a diffused aneurism form in a few days, can the operation of placing a ligature on the external iliac be performed on the same principle, and with the same hope of success, as if the case had been one of true aneurism of several weeks or months' duration? The answer is in the negative. The Hunterian theory of aneurism is not applicable to this case. The surgeon, who placed a ligature on the external iliac under such circumstances,

would probably lose his patient from mortification, because the collateral branches would not yet have had time to enlarge."

I must acknowledge I am very sceptical as to the correctness of the data upon which this reasoning is founded. I do not believe that in ordinary cases of aneurism the circulation through the sac is so far impeded or diminished as to cause enlargement of the collateral vessels, a condition of parts which Mr. Guthrie seems to think so important as affording the chief ground of hope for the vitality of the limb after a ligature has been placed on the main artery; a condition, also, which, if it really existed, would contra-indicate the operation of tying the vessel, as it would show that nature was accomplishing a cure spontaneously; but even admitting, for the sake of argument, that the fact is correct, it does not appear to me that the inference drawn from it is quite legitimate.

In the cases I have just related, the main artery of both upper and lower extremities are tied, and not only is there no threatening of mortification, but scarcely any appreciable diminution of temperature, and the restorative action goes on at least as favourably as before the operation, and as rapidly as usual. These cases, then, as far as they go, clearly tell against Mr. Guthrie's statement on this subject.

Dupuytren, Gumbaud, Samuel Cooper, Bransby Cooper, Liston, and others, have all related cases in which success has attended the tying vessels at a distance from the wounded part; but these Mr. Guthrie states were by chance and not on principle; this, of course, may also be applied to the cases I have just read, but when three instances occur in succession, in which the circulation is rapidly and completely re-established, one begins to suspect, in spite of the very high authority brought into question, that something more than chance is involved here, and that nature often possesses the power of at once establishing the circulation through a limb after the main artery is tied, without the existence of an aneurism, or of any of the preliminary preparation insisted upon by Mr. Guthrie. It is far from my intention, in these remarks, to underrate the danger of mortification after tying the main artery of a limb; my object is merely to suggest that the risk of this untoward event is not greater in traumatic than in idiopathic cases. The next point is, how far the tying an artery at a distance from the wound is justifiable as a means of arresting hemorrhage. Mr. Guthrie lays it down as an unexceptionable rule, that "all wounded arteries are to be treated by ligatures of the artery at the wounded part." He says, also, in his introductory lecture, "If surgeons fly for assistance to Mr. Hunter's theory for the cure of diseased arteries they will find a method of proceeding which is never successful when put in practice for a wounded artery, or at least so seldom successful as to form only an exception to the general principle already mentioned, and which can never be departed from without imminent danger to the limb, if not to the life of the patient."

This is strong language; and in venturing the opinion that there are cases which should form an exception to this rule—such, namely,

as those I have just related.—I am aware that I may incur the imputation of presumption in questioning so gigantic an authority as Mr. Guthrie; but then I cannot forget that I am supported by some great names, and amongst others, by one of the first surgeons of modern times, one who "being dead, yet speaketh"—the much to be lamented Liston. He states, "that cases may occur in which it is both more convenient and more scientific to apply a ligature at a distance from a wounded artery," and it appears to me that the cases I have related fully bear out this opinion. I do not for a moment deny, that immediately upon the receipt of injury, if a large vessel be wounded, it is best to secure the divided ends. I do not, in fact, argue against the correctness of this principle so strongly laid down by Mr. Guthrie; it is rather against the universality of its application that I am contending. I believe that wherever the parts have become covered with granulations, so as to conceal the bleeding point, and to cause the structures to break away under the forceps and the ligature,—wherever, again, there is a sloughy and inflamed condition of the surrounding parts, so as to obscure the position of the vessel, and the patient is so enfeebled by previous loss of blood, that any additional flow may prove fatal; wherever, lastly, there is a compound fracture attended with uncontrollable arterial hemorrhage, but in other respects presenting a fair prospect of recovery;—under these three several conditions of parts, any endeavour to find the wounded vessel is attended with great difficulty, and will most probably end in failure, involving the loss of the limb, and perhaps the life of the patient; and that, under all these circumstances, the easiest, the safest, the most effectual, and therefore the most scientific plan, is to pass a ligature round the main artery where the parts are in a healthy and unaltered condition. (I may mention, that since I read this paper, a clinical lecture by M. Baudens has been published in the Lancet, upon this subject. He says: "In those cases where compression has been kept up unsuccessfully for so long a time that the artery has inflamed, it is advisable to apply but one ligature on the cardiac end of the vessel, but high enough to meet with healthy structures." Here then is another valuable testimony in favour of the plan I am advocating.)

Lancet, Nov. 25, 1848, *p.* 577.

75. – *On Ligature of the Subclavian Artery.*—By Dr. W. Hargrave, Surgeon to the City of Dublin Hospital, &c.—[Dr. Hargrave thinks that the chief cause of failure in the operation of securing the subclavian internal to the scaleni muscles, is that the artery cannot be placed in a relaxed position after the operation. He proposes to remedy this evil by *sawing through the clavicle.* Cruveilhier and others have advocated this manœuvre as a means of facilitating the exposure of the vessel ,but Dr. Hargrave recommends it with a different object. He says:—]

It is this step in the operation which I would again propose, not so much for the facile exposing of the artery, but to allow it to be

gently relaxed, after having been secured, the section of the clavicle would allow this to be done by permitting the approximation of the shoulder to the trunk, and so remove any strain or tension that the ligature might cause on the vessel; it would also remain more imbedded in the surrounding cellular membrane, and receive its supply of blood more freely to assist in the sanatory processes consequent on the operation; while the movements of the upper extremity would produce but little, if any, disturbing effects upon the artery.

The mode of conducting the operation I propose would be, after the vessel was exposed and encircled in the ligature, carefully to saw through the clavicle about its middle, having previously guarded the subjacent parts with a spatula. If any alterations followed this step in the relations of the artery they would be of little consequence, it being noosed prior to the section of the bone; no delay or hinderance would then prevent the tying of the artery. The action of the muscles which draw the shoulder to the trunk, as the subclavius and pectoralis minor should then be aided by position, and the arm retained *in situ* by a bandage.

Dublin Quarterly Journal, Feb. 1849, *p.* 153.

76.—*On the Use of Ligatures Formed of Animal Substances.*—By —— Wragg, Esq.—The substance which Mr. Wragg prefers is the fibrous tissue of the deer, dried, then twisted so as to form a small round thread, smooth and regular on the surface, non-elastic, sufficiently strong to resist the traction made on it by the surgeon in tying the knot. The mode of preparing these ligatures appears to the author to be a matter of great importance, and one capable of insuring or compromising the success of the operation: These tendinous slips ought to be dried slowly, and not used until all the moisture has disappeared; the author prefers those which have been dried for some years. One objection that might be raised against these ligatures of animal substances is, that they do not determine the degree of inflammation necessary for the obliteration of the artery; but this fear must yield to the testimony of all the surgeons who have found in this practice a sufficient hæmostatic remedy. This is not the reason why it has been rejected by some medical men, but rather because they doubted whether the substance of these ligatures could be effectually absorbed, and disappear amongst the tissues; the experience of Mr. Wragg fully replies to these apprehensions. During the ten years he has employed these ligatures, he has never used any others; and during this period he has tied arteries in the fingers, hand, forearm, arm, leg, and thigh, and has never seen any symptom to show that the absorption of the knot had not taken place. Some cases, chosen from a large number, will confirm the truth of these propositions: In 1836, Mr. Wragg amputated the leg of a woman above sixty years of age for a malignant ulcer; the ligatures made of the fibrous tissue of the deer were cut close to the knot, and the wound brought together; the stump was healed at the end of three weeks. No part of the

ligatures could be seen; no abscess, no ulceration, indicative of the threads having acted on the tissues as foreign bodies.

In the case of a young man, one of the cutaneous branches of the posterior tibial artery was cut by a blow from a hatchet. Mr. Wragg tied it with one of these ligatures, which he cut close to the knot; he then brought the wound together by four points of the interrupted suture made of a thread of the same substance. Nothing further was seen of the knot of the ligature; as to the threads used for the suture, they became softened, and, from the time suppuration commenced, had a macerated appearance, their volume diminished by degrees, so that at the end of a certain time he saw, by the effect of a gradual eating away, a segment of the circumference of the thread disappear, and at last the knot gave way just as if it had been divided by scissors.

In 1839, Mr. Wragg performed an amputation at the wrist, in consequence of injuries received by a railway accident. He tied the arteries with ligatures made from the fibrous tissue of the deer. On the 12th day, suppuration being established, one of the knots became loose, and came away by the wound, but so diminished in size, and so softened, that it was with difficulty recognized; and even Mr. Wragg himself declares, that he is still in doubt whether it was not a portion of sloughing tendon.

The preceding facts indubitably prove the reality of the absorption of the ligatures formed of animal substances. The following is not less interesting, as an example of the comparative effects of this kind of ligature, and those made of vegetable threads. After amputation at the lower part of the thigh, Mr. Wragg tied the femoral artery and vein, the only vessels requiring ligature, with ligatures made from the fibrous tissue of the deer, and cut them off close to the knot; the stump was dressed, and the wound brought together with six points of suture, two being ligatures made from fibrous tissue of the deer, the other four of hemp. At the first dressing, on the fourth day, all the wound was united except at two places, where a strong portion of fascia-lata had prevented it. On the sixth day the two ligatures made from the deer came away without the necessity of being cut, whilst the four of hemp had to be cut previously to being withdrawn. The small wounds made by the ligatures of hemp were more inflamed than those made by the animal ligature.—*South. Amer. Jour. of Med. and Phar.*, as quoted in *Gaz. Méd. de Paris*, Nov. 18, 1848.

Monthly Retrospect, March 1849, *p.* 61.

77.—*On the Suppression of Hemorrhage.*—By J. P. Vincent, Esq. —[Mr. Vincent does not agree in the common opinion, that it is best not to disturb clots, in cases of bleeding. He says:]

The most important step in managing all cases of bleeding is, that the surgeon should be most careful to keep the bleeding vessel free from all coagulum. The smallest arteries will go on bleeding if they are covered with a clot, and many considerable hemorrhages

will stop if the bleeding points are quite clear from all blood; even rather large arteries will sometimes permanently cease to bleed, if kept uncovered and exposed to the air. This fact I have seen. It is known, that if a divided artery be in contact with a layer of fibrine, it has a strong affinity and aptitude to shoot into it, and it is possible that a clot of coagulum has a modified effect of this sort upon the orifice of an artery, so as to keep it from contracting and closing. It is, however, certain, that a coagulum over a bleeding artery keeps up hemorrhage. It is by this means that all styptics have generally failed, while for the most part they have only done what bare exposure will generally effect; if the blood be carefully removed, and the styptic be applied, it has the credit of supporting its character, but generally, if the blood be removed and kept from forming a coagulum, the vessels will cease bleeding, as the effect of the mere exposure of the part. The doctrine explaining the use of plugs of coagulum about an artery, to restrain its bleeding, was never to me very convincing. I know practically that arteries of a considerable size, such as those about the hand, of the size even of the radial, will cease to bleed if left quite exposed, and kept freed from the formation of coagulum taking place about them; so, when the socket of a tooth bleeds, if it be kept quite clear of coagulum, and the oil of turpentine be applied, it will succeed in quickly arresting the bleeding.

I have every reason to feel assured, from what I have tried in these cases, that the bleeding may be stopped in epistaxis upon these principles, by which the patient may be saved from the annoyance of what is called plugging. The plan of the proceeding that I have adopted is to keep the parts which are bleeding freed from all coagulum, and this should be done in this case by syringing the nostrils, so as to wash the blood out. Now, if a styptic be used, such as the sulphate of zinc, it coagulates the blood as it issues from the vessels, and so far stops the bleeding; but there is a process going on, by which this clot is loosened from its adhesion, and, perhaps, on the second day the bleeding is renewed. This will happen repeatedly; so that these cases have ended by being plugged. But what I contend for is, that if the syringing be carried on until the bleeding ceases, it will not only stop, but not recur. It is generally considered of importance, that the water used in cases of bleeding should be cold: but from what I have observed, arteries will contract under the use of warm water, which has a better effect in clearing away the clots, and keeping the parts clean from the blood. I have already alluded to the influence of a coagulum in keeping up bleeding, when speaking of the necessity of squeezing out the coagulum in a pile when it is opened.

Edinburgh Medical and Surgical Journal, Jan. 1849, *p.* 187.

78.—*On the Use of Oil of Turpentine in Hemorrhage.*—By J. P. Vincent, Esq.—[This styptic, recommended by a Mr. Yonge of Plymouth, one hundred and seventy years since, is highly spoken of by Mr. Vincent. He says:]

Some years ago, a youth was brought to me who was passing blood in his urine. I ordered some draughts, with a few drops of oil of turpentine; the bleeding quite stopped before the end of the second day, and did not return. About a twelvemonth afterwards he was brought to me, having cut his finger but slightly; it had continued bleeding for some days; I gave him turpentine again, it stopped in a day or two. Not long after, he came a third time to me; he had a tooth extracted, and it had been bleeding for several days; the turpentine was had recourse to, and the remedy soon acted in the same sanatory way. I have several times been called in on account of hemorrhages where teeth have been extracted, and have never seen the turpentine fail in this, nor in other similar cases of hemorrhage. Not only is the administration of this medicine by the mouth so efficacious, but the local application is also powerful in stopping bleeding, and happily so, as it anticipates the time the other method requires for effecting the purpose; at all events, it is a powerful auxiliary. The use of it is to be made with the injunction that no coagulum should be allowed to remain upon the part. I was on the point one day of leaving London for a few hours, when I was called upon to a case of bleeding from the socket from which a tooth had been extracted, and that in considerable quantity, the subject being a weakly middle-aged female. My confidence was such in the power of my means, that I left instructions to clear away the coagulum, if any, and to apply turpentine to the part, and I ordered draughts of it to be taken, and went away without waiting to see the effect. I learnt afterwards that the bleeding had soon stopped, and the medicine internally was not wanted.

Ibid, p. 186.

79.—*Mode of Stopping Bleeding from Leech-bites.*—By J. P. Vincent, Esq.—In suppressing bleeding from leech-bites, often a dangerous accident in children, he finds that the best plan is to unite a small piece of lint into a hard knot, less than a pea, and wiping the orifice clear of blood, to place this little pad on the bleeding orifice, and then, taking advantage of the elasticity of the integument, to draw tightly over it a strip of adhesive plaster. This is sufficient to stop the hemorrhage, and on the third day the wound is closed.

By extending this principle, and employing a larger pad, he has succeeded in stopping the bleeding from arteries of tolerable size, as the *superficialis volæ*, and the superficial palmar arch. This plan, he assures the reader, presents great advantages over the usual method, both in the facility and simplicity of the application, in the efficiency of the means, and the ease with which the wound is afterwards healed. He therefore rejects entirely the proposition of applying a ligature to the radial and ulnar arteries for suppress-hemorrhage from arteries on the hand.

Ibid, p. 188.

80.—*To Arrest the Bleeding from Leechbites.*—[Mr. TUCKER states that he has arrested bleeding from leechbites by dipping some of the flocculent portion of lint in collodion, and pressing it on the orifice; and then applying collodion freely over the whole surface with a camel-hair pencil. Mr. E. Wilson advises that the compress of lint should be covered by a little disc of thin paper as soon as applied, so as to prevent it sticking to the finger or the instrument, (a pencil or pencil case), by which pressure is applied.]

Lancet, Dec., 9, 1848, *p.* 644.

81.—*On the Use of Matico as a Styptic.*—By J. H. HORNE, Esq., London.—The vast superiority of matico as an internal therapeutic agent in active hemorrhages over all other astringents and styptics, is not sufficiently recognized by the profession, as the following case will prove:—Mr. R., about fifty years of age, residing near Uxbridge, suffered from an alarming hemorrhage, from the nose, occurring spontaneously, in October last. His medical attendant had recourse to every expedient to arrest the hemorrhage, but in vain, his life was despaired of, and a messenger was dispatched to London to acquaint his brothers. One of the brothers instantly repaired to the sufferer. He employed matico, and six hours afterwards, to the surprise of the whole neighbourhood, the bleeding ceased, having continued for days. The whole family suffer remarkably from this hemorrhagic diathesis, and it has descended to the children in the family of one of the brothers.

Nov. 7th, 1848.—I extracted by the fingers, and a pocket handkerchief, two front teeth from another brother, living at Walkern, Herts. At the time scarcely a drop of blood followed; but in the evening of the same day it began, and continued for two days and two nights, without intermission, though not in sufficient quantity either to alarm my patient, or require his sending expressly for me. A few doses of the infusion of matico would have arrested the bleeding in a very short time. Had the teeth not been very loose for upwards of two years, and almost dropping out of the mouth, I should have declined removing them, without having first administered the matico for several days previously, which is the proper practice to adopt.

Another relative was fast sinking into the grave from disease and uterine hemorrhage, which completely baffled the ordinary remedies. On the use of the matico, the bleeding ceased, and she is now fast recovering.

Lancet, April 14, 1849, *p.* 395.

82.—*Substitute for Leeches.*—Invented by MM. ALEXANDRE & Co., Paris.—The apparatus consists essentially of two parts—an instrument for puncturing the skin, and another for promoting the flow of blood by removing atmospheric pressure from the punctured part. The puncture is effected by a lancet, the blade of which has the form of the cutting apparatus of the leech. This lancet is fixed in the mouth of a tube, and projects about the eighth of an

inch beyond the edge of the tube. It may be elevated by a small lever, so that its point shall be within the tube, in which position it is secured by a catch. Attached to the opposite end of the tube, by a piece of vulcanized India-rubber, which acts as a spring, is a piston, which is pressed down by a rod, and, on removing the pressure, is drawn back by the India-rubber spring. The piston being pressed down, the open end of the tube in which the lancet is fixed, is placed over the part to be punctured: the pressure is now removed, when the piston is drawn back by the spring, and exhausting the air within the tube, the skin is forced up into the mouth of the tube. On loosening the lever, by which the lancet has been elevated, the latter is drawn down by a spring, also of vulcanized India-rubber, so as to effect the puncture. The cutting instrument is now removed, and a glass tube, with a piston, similar to that already described, is placed over the puncture, the air within being exhausted so that the tube adheres to the part, and the blood flows freely into it. Half a dozen or a dozen tubes, each of which would draw as much blood as a large leech, might be thus attached in two or three minutes. The apparatus, consisting of a cutting instrument and six or twelve suction tubes, together with sundry implements for cleaning the lancet and tubes after use, are contained in a small case. It is very neatly got up, and, we understand, from those who have used it, is very efficient. The idea, however, is not new: so long ago as the year 1813, the silver medal was awarded at the Society of Arts to Mr. J. Whitford, of St. Bartholomew's Hospital, for the invention of a somewhat similar apparatus for the same purpose. In Mr. Whitford's apparatus the exhaustion was effected by a syringe, which was found to be inconvenient. The use of vulcanized india-rubber springs, attached to the pistons, by which efficient suction-tubes are economically formed, is a great improvement in MM. Alexandre's apparatus.—*Pharm. Journal* for Feb. 1849, p. 369.

London Journal of Medicine, March, 1849, *p.* 286.

83.—*Treatment of Varix.*—By Dr. Hargrave.—Dr. Hargrave states that he has found the application of vulcanized India-rubber, in the form of a ring or garter, to be constantly worn on the leg, as a very efficacious method of treatment. The following cases are related corroborative of this statement:—

—— Tuite, a servant, æt. 47, admitted into hospital November 9th, 1847; now, and for some time, of temperate habits, with an extensive varicose ulcer on the inner and anterior part of the left leg, the veins being in a very varicosed condition, with their capillaries exhibiting a great tendency to be ruptured. The veins of the right leg were also in the same condition. He was treated by means of position and the lotio nigra, attention being directed to the regular action of the bowels. For a week he had the leg bandaged, from the toes to the knee; when I cast off the bandage and substituted for it a garter, applied immediately below the knee; made of tape inch wide, into which a piece of vulcanized India-

rubber was inserted. This garter or ring was, to a certain degree, less in circumference than the leg, and was placed *in sitú* by stretching it and carrying it over the foot and ankle, up the limb, to its situation a little below the knee. The man experienced the most marked comfort from this kind of bandage, so as to ask for one for the other leg. The roller was discontinued, and under the use of the garter the ulcer healed rapidly, so as to admit of his discharge with it firmly cicatrised, on the 14th of December.

Mary M., æt. 40, seven months pregnant; extensive varices of both legs, with minute dark-coloured capillary vessels in different parts of each leg, representing a pencilliform appearance. Each leg was also swollen. The saphena of both thighs was also varicosed, and extremely convoluted for a space equal to the palm of the hand in the centre of the limb. She also complained of considerable pain in the legs. On Saturday, May 27th, the garter was applied to the left leg. June 1st. Pain almost gone; tumid condition of the leg less; expresses herself much relieved by the use of the garter. 6th. Pain gone; tumid state of the leg much diminished; veins less, and feels herself decidedly better. Garter applied this date to the other leg. 17th. The left leg continues still well, and the fulness more diminished; the right one is also improved, but not to the same degree as the other leg.

—— Gallagher, a blacksmith, æt. 50; large varix on the inner surface of the calf of the right leg; also one forming at the anterior and inferior aspect of the tibia, to which some pain is referred. Garter applied to-day, June 1. On the 3d, some trifling œdema of the leg, as the garter was at its maximum of tightness, but no pain; that which was complained of in the anterior and inferior part of the tibia gone, and the cluster of varicose veins less. He has not applied at the hospital since the date mentioned.

—— Connor, varicose veins of the right leg, with an ulcer on the anterior part of it. June 7th. Garter applied. 21st. Second visit to the hospital; the veins better; the ulcer on the leg healed, and states that the leg is stronger. Owing to the pressure being a little too tight, a slight excoriation formed on the external part of the limb underneath the garter, which could have been prevented if he had taken but moderate care of himself, and attended the hospital for examination. A new one is being made for his use.

The simplicity and facility of application of this garter can recommend its adoption in such cases. In these instances the great benefit derived from it was the support it gave to the veins, which, if overloaded on the distal side, it was merely necessary to stretch the garter, when the *veins were instantly seen to empty themselves.* For prolonged use I think it will supersede the laced stocking and the roller, either of which, by the general compression of the limb, causes the wasting of the muscles and of the soft parts, as I have often witnessed in those individuals who have worn one or other of these bandages for a few years, and produces also a certain amount of debility. No such risk is incurred by this means of support, nor any danger to be apprehended by creasing

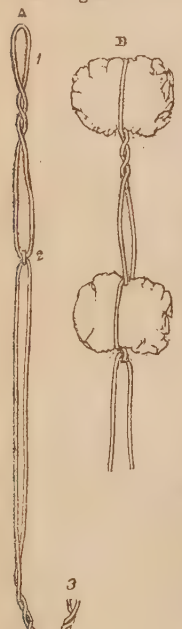
or unequal pressure of the integuments causing fresh ulceration, if but ordinary attention is paid in wearing it. The patient is also saved from the inconvenience, which to some is of some amount, of the extreme heat of the leg caused by the laced stocking.—*Dublin Medical Press.*

Dr. Hargrave has also employed with benefit this species of elastic bandage in a case of nævus, and it might be, perhaps, advantageously used in the umbilical hernia of infancy.

Medical Gazette, Dec. 22, 1848, *p.* 1085.

84.—*New Instrument for Plugging the Nostril.*—By Dr. C. Edwards, Cheltenham.—[Dr. Edwards describes a simple instrument for plugging the nostrils. He says:]

The origin of the instrument was as follows:—In passing through the country, being hastily called to visit an elderly female, almost pulseless from violent and protracted epistaxis, and on former occasions having adopted the late Mr. Liston's method, I accordingly asked for a piece of wire, to convey a thread ligature from the mouth. The only wire to be had was a piece of wire ribbon, which a woman tore from her cap. This I at first rejected, but afterwards used, and by it then, and several times since, I have been enabled to perform the following elegant and simple operation.



First.—*To construct the instrument:* Take a piece of wire ribbon, and cut out a single wire about thirty inches in length; double it, and form a space, by two or three twists, at a sufficient distance from the middle of the duplicature, when expanded, to enclose a proper plug of lint or sponge. From the extremity of this space, at the distance of the anterior and posterior nares, say about three inches, make the first noose of a knot, and then place the ends parallel their remaining length, except at their extremities, which are to be twisted together, and then bent into a hook.

Secondly.—*To operate:* Pass the extremity which is to contain the plug along the floor of the nostrils, it will be found to project into the pharynx. At this point of the operation, by every old method, including Liston's, I have often had trouble in finding the extremity of the wire or threaded probe among the clots, which difficulty has suggested the watch-spring instrument of the shops, which is not always at hand, nor, henceforth, need be. Now fasten the hook formed at the extremity of the wire, and which projects anteriorly out of the nose through the mouth, into the projecting loop in

the pharynx; and, having drawn it out of the mouth, include as much lint as will suffice for a plug, securing it simply by twisting. Now retract it above the velum pendulum palati into the posterior nares, till the progress of the plug is arrested; next separate the ends hanging from the anterior nares, place a second plug between them, pressing it up to the noose previously mentioned, and securing this by a common knot, we finish the operation.

The advantages of this instrument are thus obvious—viz., the facility of obtaining its material in the poorest cottage upon an emergency; its projecting into the pharynx quite as well as the watch-spring instrument of the shops, thus rendering the operation almost momentary; its being strong enough to pass as a probe, and sufficiently delicate to tie as a ligature. Further, the way whereby the posterior plug is secured by twisting, enables the operator to increase the size of the plug instantly, should it be found too small, and accidentally be drawn through the anterior nares, which accident, were the plug secured by a knotted thread. would complicate the old, troublesome, and sometimes tedious operation.

Description.—A. Instrument ready for operation—should be about fifteen inches long; B, the same after operation, inclosing the posterior plug by torsion, the anterior by knot, the ends cut off at anterior nares; 1. Duplicature for posterior plug; 2, Noose for anterior plug; 3, Hook to draw the duplicature from pharynx.

Lancet, Feb. 3, 1849, *p.* 122

ORGANS OF RESPIRATION.

85.—ON LARYNGOTOMY AND TRACHEOTOMY IN ACUTE AFFECTIONS OF THE LARYNX.

By Prescott Hewett, Esq., Assistant Surgeon to St. George's Hospital, &c.

[Mr. Hewett's object is to show that when we have to operate for the relief of dyspnœa arising from acute affections of the larynx, it is advisable to make the opening in the crico-thyroid region. He observes:]

Acute affections of the larynx, terminating in effusion, present, it is well known, a very great difference in the adult and in the child; the effusion, in the former, taking place by far most frequently in the sub-mucous tissue; whereas, in the latter, it is usually poured out on the free surface of the mucous membrane. In these cases, in the adult, the effusion is purely laryngeal: in the child, it is, most frequently, not only laryngeal, but also tracheal.

This marked difference in the localities of the effusion, at these two periods of life, at once points out two great divisions, in which the surgical treatment will necessarily be very different. My in-

tention is to confine, for the present, these remarks to one of the divisions only, that of the adult period.

Effusions in the sub-mucous tissue of the larynx, it matters not of what kind, or how produced, are strictly limited to the parts above the rima glottidis. This fact, already pointed out by several pathologists, has not, I think, been sufficiently dwelt upon by practical surgeons.

That the effusion is thus invariably limited to this region, may be proved by morbid anatomy, by experiments, and by the anatomical structure of the parts. In the following cases, especial notice was paid to the limits of the disease, at the post-mortem examinations, some of which were made several years ago.

[After relating a number of post-mortem examinations, in which effusion was limited to the sub-mucous tissue of the larynx, and did not at all involve the trachea, Mr. Hewett says:]

The appearances were the same in several other post-mortem examinations, the details of which I think it quite unnecessary to give here. In all of them, whatever may have been the state of thickening above the inferior vocal cords, these cords themselves presented their well defined, sharp margins, and, in many instances, their glistening appearance, the mucous membrane covering them not being in the slightest degree affected. In none of the cases was the mucous membrane of the trachea thickened.

That such are the precise limits of the effusion, in most cases of acute affections of the larynx at the adult age, can also be proved by some very simple experiments. If a larynx and trachea be removed and kept in water for some little time, the cellular tissue of all the parts above the inferior cords will become œdematous and swollen, whereas the parts below these cords will retain their usual appearance, the cords themselves presenting, in all cases, their well known glistening appearance. So, too, if either water or air be injected into the cellular tissue of the larynx, it will be found not to pass beyond the upper margins of the inferior cords; further than this spot, it cannot be forced downwards.

The explanation of this limitation is easily found in the anatomical structure of the larynx and trachea. Above the inferior vocal cords, the mucous membrane is connected to the subjacent parts by means of a loose cellular tissue, which is very abundant, especially in the region of the aryteno-epiglottic ligaments, whereas the connections of the mucous membrane lining these cords, and the trachea, are very firm; the cellular tissue here, being very short and very dense, forms so firm a bond of union, that it is difficult to separate the mucous membrane from the parts lying below it.

The late Mr. Liston, who was a staunch advocate for the operation of tracheotomy in most affections of the larynx, where an operation was required, admitted, in some observations published in the Lancet of 1844, "that the high operation in the crico-thyroid membrane, laryngotomy in fact, might answer in cases where there is obstruction in the rima glottidis, as where swelling has followed

a scald of the glottis." The admission thus made by Mr. Liston for these cases of accident, ought to be applied to most cases of acute laryngeal affections in the adult. After childhood, it is, comparatively speaking, very rare to find the obstruction anywhere but at the rima, or immediately above this region: it matters not whether the effusion has been preceded by an accident or not, its locality is precisely the same in both instances; it is limited in the one, as well as in the other, to the parts above the rima.

Although the effusion be above the rima, in practice it will be found, in most instances, that the obstruction for which the surgeon is called upon to operate is at the rima itself. The sudden and urgent dyspnœa, coming on in paroxysms, at once shows that this obstruction is caused by spasms of the muscles in this region. This too is proved by post-mortem examinations; for in many cases, where patients have died of sudden suffocation, the effusion has been so slight as to present little or no obstruction: certainly not sufficient to account for the symptoms. It is this spasmodic state which renders the operation of laryngotomy of so much value: coming on, as it does, so suddenly and violently, it demands that the relief be immediate: the opening in the air passages must, in many instances, to be of any avail, be made, as it were, instantaneously: tracheotomy, it is well known, cannot thus be performed with safety to the patient. A striking instance of this nature came under my notice some years back. A young woman, who was affected with extensive syphilitic ulceration of the throat, was suddenly one night attacked, no premonitory symptoms having been present, with most urgent dyspnœa; it was determined by the surgeon, who was close at hand, to perform tracheotomy; the operation was well done, but some little time was lost in making the opening in the wind-pipe, in consequence of some venous hemorrhage, and the patient, who made a slight rally after the introduction of the canula, soon died. At the post-mortem examination, the larynx was found to be quite healthy; the urgent dyspnœa had been caused solely by spasm of the glottis, induced by the irritation which was going on in its immediate neighbourhood.

Many surgeons object, I know, to this operation of laryngotomy in acute diseases about this organ; they think it desirable that the opening should be made as far as possible from the seat of the inflammation, for fear of the canula becoming the cause of extension of the disease down the trachea. Such an objection, it has, however, been shown, in the preceding observations, is not a valid one, inasmuch as the effusion in these cases does not extend beyond the loose cellular tissue of the larynx. Supposing the canula to excite some inflammation, the mucous membrane would be very slightly thickened, and an effusion of lymph might take place on its free surface; but this might be caused if the canula were placed in the trachea, just as readily as when the opening is made in the larynx. A canula placed in the larynx is not, however, likely to cause inflammation of any consequence there. This point I have particularly noticed in several post-mortem examinations. In a larynx in which a

canula had been kept in the crico-thyroid region for thirty-six hours before death, there were no traces whatsoever of inflammatory action in this spot, notwithstanding that there was an abundant effusion of sero-purulent fluid above the inferior vocal cords. In another larynx, where the canula had been kept in the same region for forty-eight hours, and under similar circumstances, there were no traces of inflammation produced by the presence of the tube; neither was there any inflammatory action produced by the canula in a third case, in which it had been kept in the crico-thyroid region for several days; the mucous membrane, with the exception of the margins of the wound, not being even discoloured.

In the preceding observations, reference has been made to laryngotomy in the adult only; but there is a class of cases occurring,—and that not unfrequently, among children,—in which this operation is equally valuable. I refer to those cases where the little patients have swallowed either acids, or, more commonly, boiling water. Here the limits of the disease are just as well defined: the effusion following the accident, being in the sub-mucous cellular tissue, is strictly limited to the parts above the inferior chordæ vocales, and morbid anatomy shows precisely the same state of things as that which occurs most frequently in the adult; the urgent dyspnœa is in the same manner produced, in a great measure, by spasm of the glottis. In this class of cases, it may, I think, be said that laryngotomy is even more valuable than it is in the adult, owing to the much greater difficulty which naturally exists, in laying open the windpipe of a child.

Having thus pointed out the exact nature of the disease in these affections of the larynx, if we now proceed to weigh the respective merits of the two operations which may be resorted to, we shall find that either of them will serve for the relief of the urgent and distressing symptoms which sometimes accompany these cases. On the one hand, however, we shall have an operation, laryngotomy, which may, in most instances, be performed with great ease, and, as it were, instantaneously; and, on the other hand, tracheotomy, an operation, the difficulties and dangers of which are such, that all experienced operators and practical writers have thought it advisable to dwell upon them strongly,—so strongly, indeed, that it will be quite unnecessary for me to recapitulate them.

Such being the case, I shall close these observations with the two following general rules:

In adults, laryngotomy is, in cases of acute affections of the larynx, to be preferred to tracheotomy.

In children, laryngotomy is also to be preferred in cases where the obstruction has come on after swallowing boiling water, acids, or any other irritating fluid.

London Journal, Feb., 1849, *p.* 129.

86.—*On Tracheotomy.*—By Dr. Marshall Hall, F.R.S., &c.—[At p. 110 of our last volume, will be found a description of an instrument for performing tracheotomy, recommended by Dr. Hall. Dr. Hall now makes the following additional observations on the cases in which this operation is required. Speaking of the instrument, he says;]

It will be obvious that the trachea may be readily fixed by the tenaculum. The canula being then made to revolve by the thumb and finger, it descends with this revolving motion along the screw, and removes a cylindrical portion of the trachea.

In every case the first thing to be done is to make an incision of appropriate length through the integuments merely. All the other tissues down to the trachea are to be *pushed aside* without further incision, which may be done without the slightest hemorrhage.

For this purpose either an eye-probe may be used, or the double-acting forceps closed. Either of these being introduced, and gently moved in different directions, the trachea is at length laid bare, and this part is *kept exposed* by applying and expanding the forceps.

At this moment, either an incision may be made into the trachea, by means of a minute scalpel, such as is used in operations on the eye, and this incision may be kept open, by means of the double-acting forceps, whilst a silver tube is introduced; or the tenaculum canula may be applied, and a portion of the trachea removed, and the tube may be inserted, or not, according to the views of the operator.

In one case, in which the operation was performed by Mr. Hilton, and the subsequent treatment was conducted by Mr. Stevens, of Great Percy-street, Lloyd-square, such a tube has been worn for nineteen months, without inconvenience. The patient is a female of five-and-twenty, and probably labours under contraction of the rima glottidis, from the healing of a syphilitic ulcer.

In another case, that of a man aged sixty, suffering under chronic laryngitis, on whom Mr. Fergusson performed the operation of tracheotomy, a tube has been so worn for half a year.

In no part of all this operation, after the division of the integuments, will a drop of blood escape; there will be neither hemorrhage externally, nor blood drawn by the acts of inspiration into the trachea. This operation becomes almost as easy, almost as safe, as phlebotomy.

On Physical Lesion of the Larynx.—It is unnecessary for me, in this place, to do more than advert to those cases of physical lesion of the larynx, in which tracheotomy is the remedy. My object is rather to adduce other examples, and examples of a different nature, of its utility.

On Spasmodic Laryngismus.—The next case to be mentioned here, as requiring the operation of tracheotomy, is that of spasmodic closure of the glottis or larynx—or *spasmodic laryngismus.*

An eminent medical professor sent for me, in haste, on account of a feeling of imminent suffocation, the effect of having inhaled, during an experiment, chlorine gas.

Every one remembers the public interest attached to the case of Mr. Brunel.

No one would hesitate, in such cases, to perform the operation of tracheotomy.

In some cases of choking, too, the same necessity for this operation may exist.

The specific effect of strychnine is spasmodic laryngismus. The case therefore requires tracheotomy, if time be given.

Tracheotomy has also appeared a justifiable measure in certain cases of tetanus, and in hydrophobia.

But besides these cases, there are several others, in which tracheotomy would appear to be an appropriate measure.

The violence of the general convulsion in epilepsy, and in puerperal convulsion, seems to be essentially linked with closure of the larynx. Without such closure no such violent and general convulsion could take place; and without such convulsion the cerebrum could not become the seat of violent congestion; and as a further consequence, no danger to life or intellect could exist.

But the epileptic coma, and especially the coma of puerperal convulsion, may prove fatal. And if there were no danger to life, the repetition of the attack of epilepsy may damage the memory, and, finally, the judgment.

Now if all this can be prevented by the operation of tracheotomy and the insertion and permanent retention of a silver tube in the wind-pipe, surely the remedy is incomparably lighter than the disease, than which, indeed, nothing can be more deplorable.

Besides, each epileptic attack leaves, after the first effect of exhausted excitability is over, augmented disposition to renewed attack, the effect probably of congested medulla oblongata.

To obviate such havoc in the cerebrum and the medulla—to obviate the repetition of the paroxysm, and the injury to intellect, I venture to propose to the profession the adoption of tracheotomy and the tracheal air-tube.

On Paralytic Laryngismus.—The late Dr. Hugh Ley mistook the laryngismus which is so frequently observed in infants, for a paralytic affection, and argued for the error in the most ingenious and elaborate manner. This affection *is* spasmodic.

But there *is* a *paralytic* laryngismus, and it greatly resembles that condition produced by division of the pneumogastric nerves to which Dr. Hugh Ley adverted.

Every case of *stertor* is in fact, I believe of this kind,—an important generalization, if correct.

This stertor is usually associated with coma. It occurs after the severe epileptic, and the puerperal convulsion, in apoplexy, and as an effect of narcotic poisons. It induces *slow asphyxia.*

Now so far as this stertor and its attendant asphyxia are the source of danger, this danger may be averted by tracheotomy. This, therefore, is the final application of this important procedure, which I have to propose.

In such a case—a case of deep intoxication,—it *was* employed by

Dr. Sampson, as I have mentioned in my work on the "Diseases and Derangements of the Nervous System," page 280, and the patient's life was saved by it—a trophy of modern surgery.

On the Subsequent Treatment.—I have little to say on this subject. But I may observe that every means should be adopted to render the silver tube and the inhaled air as little irritating as possible.

With these objects, the form and bulk of the tube should be well considered, and the room of the patient should be kept at an agreeable and moderate temperature, and its air should be well supplied with moisture. These precautions are more essential immediately after the operation than more remotely. In time the parts involved become accustomed to the new stimulus, which thenceforth ceases to be a source of irritation.

It is quite possible for the operation to prove fatal, either from the mental shock or agitation, or from the presence and irritation of the tracheal tube. I have witnessed such an instance. Every device, therefore, for rendering tracheotomy more easy and safe, will doubtless be received with avidity by the profession.

Lancet, April 7, 1849, *p.* 368.

87.—*On Tracheotomy.*—By Henry Smith, Esq.—After referring to the want of success which attends the operation of tracheotomy in cases of croup, Mr. Smith refers to another class of cases in which he thinks it will be beneficial. He says:]

The disease I am speaking of is similar to that described by French authors as diphtheritis; and those cases which I have met with may with all propriety be termed laryngeal croup, as the symptoms are mostly referrible to the larynx; and, on post-mortem examination, I have found the effects of the disease to be confined to that portion of the windpipe only, the trachea being unaffected.

It is in these cases that the operation of tracheotomy would be attended with much greater success than in acute croup; for in laryngeal croup the trachea is generally perfectly healthy, whilst the inflammation and consequent change of structure is confined to the larynx. I believe that this operation has been performed with success in diphtherite; but I am not aware that tracheotomy is generally recommended in this disease. On turning to the latest and most excellent work on diseases of children, by Dr. West, I see that he makes no mention of opening the trachea in diphtherite, although he states the fatal symptoms are ushered in by "that urgent dyspnœa, and those violent efforts to obtain air, which attend most cases of cynanche trachealis." And, speaking of the post-mortem appearances of this affection, he says—"I have in no instance observed false membrane extending below the larynx." But although I believe that tracheotomy is more adapted to, and will be more successful in, this form of disease, than in acute croup, at the same time it should be performed at an earlier period, before the powers of the patient are already too much exhausted. I am speaking,

of course, of those cases where it is evident, from prominent symptoms, that the larynx has become affected, and that a fatal termination may be expected; for death may be looked for, if there are indications that the disease has seriously implicated the larynx; and whilst the practitioner, from being averse to the use of the knife, is temporising, and hoping to avert death by other measures, the patient will in all probability be suddenly carried off, and he will blame himself for not having resorted to a proceeding which may have had a fair chance of success.

[In support of his opinion, Mr. Smith relates the case of a child in whom laryngeal affection supervened upon measles. After death, he says:]

I requested a post-mortem examination, stating my conviction that I should find some extensive disease of the larynx, and on examining the body I found my opinion verified: there was evidence of intense inflammation having been present over the posterior part of the palate, pharynx, and larynx, and, on slitting the latter open, I found the orifice of the glottis obstructed by a tenacious secretion; and, on wiping this away, the inner part of the larynx was quite changed by the disease,—ulceration had extended over its inner surface, and over the epiglottis the aretenoi-epiglottidean folds were destroyed, and the ventricles of the larynx were almost filled up. All below the lower segment of the ventricles was unaffected, and the trachea was healthy, with the exception of some congestion.

It was with great regreat that I observed these appearances after death, knowing that I had not opened the trachea. Few cases could be met with in which the operation would be more likely to prove successful; and the only reasons why I did not perform it were, that the symptoms were not, when I was present, sufficiently urgent to justify me in doing so, and I was averse to an operation which possibly, and probably even, might be unnecessary; but there can be little doubt, from the appearances of the parts, that tracheotomy was imperatively called for, and that no other measure but that could save the child; and it becomes a serious question whether, in cases of a similar nature, and where we have good reason to believe that the larynx is involved in the surrounding mischief, the trachea is healthy, and our remedies produce no decided effect,—we should not resort to tracheotomy, without waiting for that extreme urgency of symptoms which generally alone determine the surgeon in the performance of this operation.

Medical Gazette, March 2, 1849, *p.* 370.

88.—*Case of Impaction of a Dog's Tooth in the Larynx.*—By Dr. T. G. Geoghegan, Surgeon to the City of Dublin Hospital, &c.—[A little girl seven years of age swallowed, as she supposed, a dog's tooth, and was immediately seized with coughing and difficulty of breathing. Dr. Geoghegan saw her seven hours after the accident, and judging from the symptoms that the foreign body was in

the larynx, obtained the assistance of another practitioner. Dr. G. says:]

Mr. Porter having fully coincided in the view of the case above mentioned, and in the necessity of immediate tracheotomy, I proceeded with the latter as soon as possible. At this time (ten hours and a half after the accident) the breathing had rather abruptly become much more difficult; and at the commencement of the operation, which I may remark was performed by candle-light, she was in a state of imminent suffocation; the face and lips livid; the efforts at respiration violent; the eyes staring and prominent; and froth covering the mouth. The incision occupied the usual situation, and although the neck was thin, the sterno-hyoid and thyroid muscles seemed well-developed. The trachea having been seized with a hook, was opened by a rectilinear division from one-half to three-fourths of an inch in length. As no time could be spared to arrest the flow of venous blood which entered rather rapidly into the trachea, it became necessary at once to introduce the canula, and to plug the wound around it with sponge, deferring the search for the foreign body till the mouths of the vessels had been sealed by plastic effusion. The bleeding was thus easily arrested, and respiration became tranquil. Some collapse, the conjoint result of imperfect arterialization, the influence of even a small loss of blood upon a young subject, and the moderate shock of the operation, was speedily dissipated by the use of stimuli, and reaction established in three hours. In the middle of the night (the breathing at the time being rather easy), I observed a sharp clicking sound at the seat of the incision whenever the child swallowed, and on pressing the canula gently backwards, heard it distinctly strike against some hard body. Mr. Newland, licentiate of the college, who was also in attendance on the case, and present at the time, entertained the same persuasion. Considering that this must be the foreign body, I was not willing, even at some risk of recurring hemorrhage, to forego what appeared to be so favourable an opportunity of seizing it, and with this view cautiously removed the sponge. The patient at this time beginning to experience some difficulty of breathing, from the tube becoming clogged, was about to be placed on her back in order to remove the latter, when it slipped from the windpipe, and the edges of the opening in the trachea having coalesced, urgent struggling dyspnœa immediately arose, requiring the prompt divarication of the lips of the wound, during which the hemorrhage recurred; thus necessitating the replacement of the canula, and frustrating, for the time, the removal of the offending body. I should here remark, that previous to the attempt just recited, the uneasiness in the upper part of the larynx had disappeared; an additional evidence, perhaps, that the foreign body had changed its primary position. The canula could now no longer be heard to strike against the hard substance, which had been probably again driven into the larynx by the violent respiratory efforts of the patient. During the rest of the night the breathing was tolerably easy, and the skin rather hot.

On the next morning, the bottom of the neck was emphysematous—a condition which gradually extended (obscuring the outline of the clavicles) to the margin of the axillæ, the affected parts yielding, when filliped by the finger, a sound like that produced on parchment. At this period, the respiratory murmur had been for some time distinctly audible in both lungs, but less so in the left; the upper part of which evinced less clearness on percussion than the right. On applying the stethoscope, a coarse crepitus was, for the first few moments, heard, owing to the pressure of the instrument on the emphysematous cellular membrane, but afterwards no râle, except on partially closing the end of the canula, when a sonorous one was perceptible, and was also recognized by the naked ear at a little distance from the body, in the vicinity of the incision.

Since the operation, the voice, properly considered, had become of course extinct; the attempts to speak being accompanied by a sharp clicking sound of the lips, and her meaning intelligible more by observation of the motions of the latter than by the sound emitted. Subsequent to the operation, the temperature of the apartment was kept up, and steam admitted at intervals. As a prophylactic measure, and as there was some expectoration of purulent mucus, calomel, Dover's and James's powder combined, in suitable doses, were administered at intervals; some of the first named medicine having been previously given. On the next morning, thirty-six hours after the operation, as all danger of hemorrhage was past, the canula and sponge were removed, when the aperture was found to admit of easy respiration, without requiring any retraction of its edges. As, however, the margin of the opening in the trachea projected somewhat, it was removed. A search for the tooth was now instituted—first, by passing a probe into the bronchi, which procedure did not create any sign of irritation. No evidence of its presence being thus afforded, the instrument was now turned upwards to the larynx, and before it had passed more than half an inch in that direction, produced a good deal of cough, which disappeared after a little, when the manipulation could be repeated with less inconvenience.

On passing the probe to a greater height, the foreign body was distinctly perceptible by the sound elicited on striking it. Its precise situation could not, however, be determined by mediate touch. An attempt was now made to extract it with curved and straight forceps, neither of which could be brought sufficiently coincident with the axis of the windpipe to grasp the substance effectively without risking damage to the organ. A careful enlargement of the wound to a moderate extent upwards, failed to facilitate the extraction. I therefore determined, with the concurrence of Mr. Porter, to resort to a division of the cricoid cartilage, and, if necessary, of the crico-thyroid ligament. This proceeding, while free from any danger to the most important part of the larynx, offered a feasible method of removal without the risk of further delay or of inflicting with the forceps injuries which might lay the foundation

of chronic and irreparable mischief, sufficient to compromise either the voice or the life of the patient. Mr. Porter had also previously made an ineffectual attempt to force the foreign body into the mouth by passing upwards a catheter, No. 9; the latter having entered the mouth without displacing it. Observing strictly the median line, to avoid as much as possible interference with the thyroid body, I divided the cricoid cartilage, and (as appeared on dissection,) a small portion of the crico-thyroid membrane. Immediately a smart jet of blood issued from the laryngeal branch of the superior thyroid. This was easily commanded by a particle of lint and the end of the finger, when, having introduced a common dressing forceps, I had the satisfaction of removing the tooth.* After the operation, the breathing became perfectly tranquil.

[The patient went on very well, upon the whole, up to the night of the fifteenth day from the operation, when she was suddenly seized with difficulty of breathing, and died. Death appeared to have been caused by a mass of thick and viscid mucus which occupied the bifurcation of the trachea and blocked up the tubes. Dr. Geoghegan observes:]

The incidents of the foregoing case appear to present matters of much practical interest. The diagnosis exhibited but little of the difficulty occasionally experienced when the foreign body, although fixed, offers, either from its situation, size, or figure, less impediment to respiration; or where, from the intermission or cessation of the symptoms, and the paucity of the physical signs, it may be doubtful whether the offending substance has entered the air tube, or having entered, may not have been expelled and swallowed. The loud râles within the larynx, the pain referred to the latter, the difficulty of the swallowing, and the persistent nature of the symptoms, render it in the highest degree probable, that the tooth was in the first instance caught in the larynx, and becoming afterwards disengaged, glided into the trachea, where it communicated the sound heard on moving the canula after the operation, and that finally it resumed somewhat of its original position, and became impacted in the larynx under the influence of the violent respiratory struggling of the patient. If the foreign body engaged in the larynx be of such size or figure as to allow its removal through the crico-thyroid space, laryngotomy may be preferable to the opening of the trachea, and presents, in such instances, the advantages arising from more direct access to the offending substance, less troublesome amount of hemorrhage, the absence of danger from the admission of air into the veins, and probably greater facility of expelling the purulent and mucous secretions which almost invariably follow the operation. If the division of the membrane be effected by a crucial incision, sufficient space will be obtained in the adult for the extraction of most of the substances which find

* This proved to be the molar tooth of a dog. Its extreme length (measured in a right line) three-fourths of an inch: extreme breadth three-eighths of an inch. The prominences of the crown and the point of the fang were sharp.

entrance to the organ; while, should the foreign body fall into the trachea or bronchus, it is likely to be removed by a slightly curved forceps of suitable length and slenderness of blades, with more readiness than when located in the larynx, it can be reached from the trachea. It appears to me, also, that were a case to present itself in which, from the situation, figure, or impaction of the substance in the uppermost part of the larynx, the division of the thyroid cartilage, strictly in the middle line, should seem materially to facilitate its removal, there does not exist any, *à priori*, consideration of an anatomical or physiological kind to forbid such an operation, at least in the young subject.* The extraction of a body impacted in the larynx by the forceps introduced through the ordinary tracheal opening, is a matter of considerable difficulty, where, as is not unusual, the latter lies at some depth from the surface. If the practitioner should determine on resorting to the ordinary operation of tracheotomy, as he probably must in the adult, (from the less yielding nature of the laryngeal textures,) it will be indispensable to be provided with a forceps of considerably greater curvature than those usually employed, the last one and a half or two inches, (which may be slightly bent,) should form but little more than a right angle with the remainder of the blade, the points of junction of the two portions being well rounded off. In the young subject, should any difficulty be encountered in extracting a substance impacted in the larynx, the division of the cricoid cartilage, supplementary to the operation of tracheotomy, may be effected without risk, as is shown in the foregoing case.† It appears to me also worthy of consideration, whether in the child, where the cartilages are yielding, a modification of laryngotomy might not be advantageously substituted in many instances, not only of foreign body in the larynx and trachea, but also in accidents from boiling water, and in cases of disease requiring an artificial opening. The procedure to which I allude might consist in the division of the cricoid cartilage and of the uppermost rings of the trachea, in addition to the free section of the crico-thyroid ligament. Such an opening would afford equally ready access to the trachea or the larynx, and by the separation of its edges (aided, if necessary, by the removal of a thin slice from the edges of the cricoid and tracheal part of the incision,) sufficient room would be allowed for the extraction of most substances likely to be encountered in practice. If the incision strictly observe the median line, no danger of bleeding is encountered, except that from the laryngeal branch of the superior thyroid, which is easily arrested, the section of the isthmus of the thyroid body not affording any hemorrhage. There appears no reason, *à priori*, to doubt that any portion which might be removed from the cricoid would be replaced by new tissue, as in the instance of similar excision of a part of the tracheal rings. From the less depth of the parts from the surface, expectoration

* Professor Porter, whose opinion on any question of the surgery of the larynx is entitled to peculiar weight, informs me that he quite concurs in the latter view.

† The incision in the cartilage was found on inspection to have united.

would probably be more easy, and the patient less teazed by the reflux of mucus into the trachea, which is a source of much discomfort and exhaustion after tracheotomy. If the operation just described were resorted to, it might be necessary to modify the figure of the canula, should the latter be required.

The uncertain issue of cases of foreign bodies entering the air tube is strikingly illustrated by the result of the case detailed. The mass of mucus which appears to have caused death by obstructing the tracheal bifurcation was not part of the secretion of a general bronchitis, but merely a local collection produced by irritation of the lower part of the trachea and adjacent bronchi. As respiration was very shortly before death as tranquil as usual, it is probable that an inspiration following an unsuccessful effort at expectoration drew the viscid mucous mass so firmly into the opening of the bronchi as to prevent its subsequent expulsion.

Dublin Medical Press, Jan. 24, 1849, *p.* 49.

ALIMENTARY CANAL.

89.—ON FOREIGN BODIES IN THE MUCOUS CANALS.

By J. P. Vincent, Esq.

A portion of an ear of barley slips into the nostrils, with the stalk end foremost. The least touch of a body so formed, in such a situation, thrusts it further inward. For one or two days, it produces considerable irritation, which, however, at length subsides; and the foreign body, coated with thick mucus, is ejected without effort. A small piece of leaf of a vegetable gets into the ventricle of the glottis; and causes great irritation and coughing for some hours. It is soon enveloped in mucus, and comes quietly away next day.

These facts show what the surgeon should do under similar circumstances. He should not with his forceps irritate still more parts already too much irritated. He is not to allow even any effort of sneezing, in the one case, or unnecessary hawking, in the other. He is to require the patient to be kept quiet, that the body may continue in one situation, so as to acquire as soon as possible the coating which facilitates its ejection.

It has never happened to Mr. Vincent to have a case of foreign body in the trachea. But should such a case come under his management, he states that he should not think of making an opening into the trachea, providing the body moved freely up and down within the tube. He would even reverse the present practice both in this and similar cases. He would keep the patient as quiet as possible in bed or on a sofa; advising him to avoid all effort to expectorate; and he doubts not that very soon the foreign body would be ejected.

The rule seems to be on the whole, not liable to objection, if the condition specified—the mobility of the body within the trachea—be kept in mind. When the body is fixed or detained in any way, it causes inflammation and ulceration of the air tubes; and sometimes the results are fatal. Yet, even when it has caused ulceration for some time, it has happened that such a body has been at length ejected, sometimes with recovery of the patient, sometimes causing death from the injury done to the *bronchi* and lungs.

The practice of surgery presents to us the resources of nature of ridding parts of the presence of extraneous bodies by the means of the stimulus of relief. In cases of hemorrhage the surgeon plugs the nostrils. The efficacy of the operation depends upon the lint he uses being tightly pressed into the posterior nostrils. So it remains for a few days, and then if the surgeon withdraws it, he finds it free from all stricture; indeed, so loose, that it will perhaps, discharge itself into the pharynx. The bulk of the wadding is the same as when tightly introduced; and so far from having lost any of its parts, it has acquired an addition in the thick mucus with which it is saturated. The fact is, that under the influence of the stimulus of relief, the internal nares have been quietly enlarged. A child was brought to St. Bartholomew's Hospital with a pebble in the meatus of the ear. I found it of an oblong form, and firmly wedged in. I could get the blades of a small pair of forceps to grasp it when passed over the short diameter, but I could not make it stir. Having the fear before me of doing mischief by using force, I directed the mother to bring the child in a fortnight. She did so, and I found the pebble quite loose, so that it might be removed by only a shake of the head. The body was coated with cerumen, and of course interstitial absorption had been going on under the influence of the power of relief setting it free.

Edinburgh Medical and Surgical Journal, Jan., 1849, *p.* 171.

90.—*On the Proper Period for Operating for Harelip.*— Dr. Mason Warren has recently published a paper, confirmatory of a recommendation he had formerly given, that infants should undergo this operation at as early an age as possible, he having frequently resorted to it twenty-four hours after birth, and with better success than in older children. This arises from the less resistance offered by the child, and the great rapidity of the healing process at that age enabling it to suckle almost as soon as if nothing abnormal had been present.

In *double harelip*, complicated with fissure of the bones and a projecting tubercle, he operates on one side first, and allows that to heal; for, if both sides be operated on at once the tissues are too much stretched, and suppuration occurs. If one side has united, and a month be allowed to elapse before the second operation, the protuberant intermaxillary bone will be found to have become more or less drawn into its place. Sutures are very preferable to needles, however wide the separation may be; for they can be more easily introduced, cause less irritation, and can be removed in from

forty-eight to seventy-two hours, without disturbing the tender adhesions. They allow the part to be inspected, and any excess of inflammation to be kept down by wet compresses; so that after their removal, the line of adhesion is often free from redness, and, after a short time is hardly perceptible. The suture needles are most conveniently passed when straight, and sometimes by seizing them firmly with the forceps.—*American Journ. Med. Science*, No. 30, pp. 337-8.

Dr. Anselm states, that a long experience has convinced him that the practice of immediate operation, put into force by M. Bonfils, of Nancy, is the best—the child then sleeping much, wanting little nourishment, possessing only an imperfect sensibility, and offering less resistance. The longer the operation is delayed, the less perfect is the adaptation attainable, for the two segments are never developed exactly alike. The imperfect sensibility of the child is so far from favouring, as stated, the occurrence of convulsions, that these are of far more frequent occurrence in older children. The child may easily be nourished for the first three or four days with a teaspoon, and after then it will suck with ease and safety. Much disappointment in this operation results from neglecting to divide the adhesions of the lip to the gum, without which exact coaptation cannot take place. After the operation, constant surveillance of the child by two attendants, during seventy-two hours, is requisite. Each of these, in turn, constantly maintains the parts in exact apposition, by gentle pressure of finger and thumb: for in this way alone can the consequences of the movements of the face be guarded against.—*L'Union Médicale*, No. 76.

M. Guersant observes, that there are three periods at which this operation may be performed with different chances of success. The best chance is offered when it is performed within the first fifteen days. Later, we succeed less often, owing to the indocility of the child—its crying, eating, &c., preventing also accurate union. Later still, when the child has reached from ten to fifteen years, we may reason with him, and again operate with more success.—*Gaz. Des Hôp.*, No. 75.

In addition to the above, we may observe that M. Paul Dubois likewise, sometime since, expressed a strong opinion in the Academie in favour of operating, in simple cases, upon very young infants. He uses very fine insect pins; and as those usually found in the shops are too long, and bend before the tissues, thus increasing the pain and duration of the operation, they should be shortened before passing. After twenty-four hours the first threads are to be replaced by others, less tightly drawn, such change being repeated daily, and much diminishing the inconvenience produced by the pins. The upper pin may be removed after the seventy-second hour, and the lower one from the eightieth to the ninety-sixth, according to the solidity of the union, which should then be found complete. The children are suckled as usual after the operation, which M. Dubois regards as important for their welfare, and pre-

ventive of cries and struggles. He has never met with hemorrhage after the operation, and he believes the best security against this is the bringing the pared surfaces into accurate contact, and the avoiding making incisions into any other part than the lip itself. The detaching from the gum the portion of lip which is nearest to the upper angle of the wound, for the purpose of rendering approximation easier, is in his opinion unnecessary, as the natural yielding character of the part allows of this being effected.—*Brit. and For. Medico-Chir. Rev.*, Jan. 1849.

Mr. Bransby Cooper says:—"For my own part I agree entirely with Sir Astley Cooper in regarding it as unsafe to operate upon infants before weaning—firstly because from their excessive irritability they are totally unable to sustain any loss of blood; and secondly, because after the operation, they are rendered incapable of sucking; and, indeed, Sir Astley has pointed out in his lectures the frequency of the failures he met with in his own practice in operating upon infants shortly after birth. I consider the best time, under ordinary circumstances, to be soon after the child is weaned, as it is then capable of receiving nourishment independently of its mother, and has overcome the distress incidental to the separation from her.

"At a more advanced age, as the development of the upper jaw increases in proportion to the growth of the teeth, the deformity is very much aggravated, particularly in cases of complex hare-lip. In addition to this, children of five or six years old can offer resistance during the operation, and are also less patient under the restrictions necessary during the progress of reparation.

"The twisted suture is, I think, preferable to the interrupted; but, from what I have seen of the practice of my colleague, Mr. Cock, I am led to consider the uninterrupted suture better than either."—*Med. Gaz.* June 23, 1848.

Monthly Retrospect, April, 1849, *p.* 82.

91.—*On the Evils attending Excision of the Tonsils.*—By—Harvey, Esq.—[With respect to enlargement of the tonsils affecting the permeability of the Eustachian tube, Mr. Harvey said that]

The result of the examination of nearly a hundred cases had convinced him that the bodies in question had really nothing to do, mechanically, with obstructing that tube. After giving an anatomical description of the tonsils, he proceeded to show that when they became enlarged, it was always downwards and forwards—that is, in the direction of the mouth and of the œsophagus; and that, consequently, the effect upon the mouth of the Eustachian tube was that of dilatation, and not, as had been supposed, of occlusion, to that orifice. The author next enumerated the causes of chronic enlargement of the tonsils, the chief of which were cold, catarrhal affections, deranged digestion, the eruptive fevers, &c. Aphthoid affections were a frequent source of disease in the middle ear. With respect to occlusion of the Eustachian passage, he considered it to exist much less frequently than had been supposed;

and in cases where this occlusion did exist, it was not from the enlarged tonsils pressing upon the mouth of the tube, but from thickening, the result of inflammation of the lining membrane. Excision of the tonsils was not, therefore, expedient; indeed, in many cases which he had examined, that proceeding had been attended with enlargement of the follicles of the pharynx, continued heat and thirst, constant desire for deglutition, disturbance of the general health, and impairment of the voice. Enlarged tonsils were more frequently found in females than males; and when enlarged in childhood, generally assumed their natural size at puberty. They appeared to the author to have some intimate sympathy with the sexual organization. The treatment of enlargement of the tonsils consisted of small doses of the bichloride of mercury and colchicum; the latter, with guaiacum, was most efficacious.

Medical Gazette, April 6, 1849, p. 606.

92.- *Case of a Foreign Body lodged in the Œsophagus.*—By Dr. R. Paterson, Physician to the Leith Dispensary, &c.—[A little girl, five or six years old, swallowed a toy composed of metal, in the shape of a saucer, which was never expelled, and for nearly four months excited no symptoms. At the end of that time, however, she was suddenly seized with an attack of croup, the symptoms of which gave way to active treatment: and on the second day from the attack it was observed that the little patient ejected with violent coughing everything she attempted to swallow. Dr. Paterson, with Dr. Coldstream, then made an examination of the throat. Dr. Paterson says:]

Dr. C. and myself having both carefully examined with the finger the state of the pharynx and upper part of œsophagus, as well as the opening of the glottis, without being able to discover anything abnormal, a tube was then passed down into the œsophagus, which entered easily, and proceeded rapidly at first, but was soon arrested by something, and on pressing it still slightly onward, air began to pass through the hollow tube. The same result followed all the attempts made by Dr. C. and myself.

The diagnosis of this case now became a little more distinct. That an opening existed between the œsophagus and trachea was most probable; but whether this was the result of simple ulceration, or arose from the pressure of the foreign body, it was impossible to determine. The only course of treatment, however, which was left to us, was that of allaying irritation and supporting the rapidly-failing strength of our little patient. With this view, nutritious enemata, with small quantities of morphia, were repeatedly administered,—not a morsel of food nor a drop of fluid being apparently swallowed. She continued to be nourished pretty well at first. But soon the strength began to fail. Emaciation was rapidly increasing.

She became feeble, totally exhausted, and died calmly on the 20th day of March, 1848, being twenty-six days from the occurrence

of the sudden attack of croup, and nearly five months after the date at which the foreign body was accidentally swallowed.

The *post-mortem* examination revealed the true state of matters. The foreign body was found fixed in an opening between the œsophagus and trachea, about five inches down. The œsphagus was opened from behind. The *rima glottidis* and upper part of the trachea were quite healthy; but a short way down the œsophageal tube was seen the foreign body, and about a third part of it was inserted into an ulcerated fissure which communicated with the trachea. The fissure was about one inch and a-half in length, with an inflamed margin; the mucous membrane around the foreign body was all more or less inflamed; the calibre of the tube beneath was much smaller than that above the foreign body. The tin saucer lay with its cup-like cavity upwards, completely filling the calibre of the œsophagus, and so placed, that, upon fluid being poured into its cavity, it at once trickled through the ulcerated opening into the trachea. The interior of the toy was encrusted, especially at the most depending part, with a white cretaceous-looking deposit, very similar in appearance to the urinary phosphatic deposit.

The *post-mortem* examination therefore explained, in the simplest and clearest manner, the symptoms presented by this somewhat singular case.

The foreign body, when first swallowed, had obviously never passed beyond the point at which it was found.

Its rough edges had been the means of arresting its progress downwards.

At first it must have been lodged in a somewhat upright position, to enable the boluses of food and the liquids drank to pass readily over its smooth convex or lower surface.

The ulceration had no doubt been proceeding slowly for some time; but on its suddenly causing perforation of the trachea, the attack of croup commenced.

On the occurrence of the perforation into the trachea, it is most probable that a certain change took place in the position of the foreign body. Its lower edge had slid forward into the ulcerated opening, and the body of it had fallen backwards, thus filling up completely the calibre of the œsophagus, and presenting its cup-like cavity upwards, or rather in a slanting direction.

It may be remarked, in conclusion, that two circumstances, both clearly pointed out, might have been had recourse to, with the prospect of relieving the patient and prolonging her life.

First, A pair of œsophagus forceps might have been introduced, and the foreign body caught hold of and extracted.

Secondly, It was a good case for the operation of œsophagotomy had the former not been practicable.

In addition to both of these circumstances, I would remark, that the swallowing and progress of the foreign body was veiled in much obscurity. There was probable reason to believe, that it had been perfectly swallowed, and, although not passed by stool, it might

have been lodging in the stomach or some other part of the intestinal canal. The child was perfectly well, playful, and happy, eating and drinking with appetite, until the sudden occurrence of the croup, and which, too, came on, let it be remembered, after exposure to cold and damp. Further, even after the flexible tube was passed into the œsophagus, it could not be determined that it came against a foreign body, but only seemed to be slightly arrested, and the air then passed through it. This was accounted for by the cup like cavity of the foreign body having been found filled with the remnants of the food attempted to be swallowed. There was no pain externally, or swelling in any part of the neck. The foreign body, in fact, lay immediately behind the upper part of the sternum.

Edinburgh Medical and Surgical Journal, Jan. 1849, *p.* 125.

93.—ON THE OPERATION FOR HERNIA EXTERNAL TO THE SAC.

By James Luke, Esq., Surgeon to the London Hospital, &c.

[At page 201 of our seventeenth volume will be found an abstract of a paper on this subject, read before the Royal Medical and Chirurgical Society: we here give the most interesting points of Mr. Luke's paper more at length. Mr. L. gives details of fifty-four cases of hernia, as the basis of his reasonings. He says:]

Of the fifty-four cases, the sac was opened in twenty-one, of which three died; and not opened in thirty-three, of which two died. Thus in upwards of three-fifths of the whole number, Petit's operation was successfully completed. Of the cases in which the sac was opened, in ten the strangulation of the contents had continued before the operation was performed under twenty-four hours, of which one died; in three, under forty-eight hours, of which one died; in eight, above forty-eight hours, of which one died. Of the unopened cases the strangulation had continued in thirteen under twenty-hours, of which none died; in twelve under forty-eight hours, of which one died; in eight, above forty-eight hours, of which one died. It should be recollected, whilst comparing these results with each other, as well as with the results of the ordinary operation in which the sac is opened extensively, that in opening the sac in cases of failure, it has not usually been divided beyond a limited extent, (varying from one quarter of an inch to one inch and a quarter), and that consequently the irritation, from exposure of the hernial contents, and from the rough and immediate handling which they too often undergo when already in a condition of high inflammation, is almost wholly avoided. For this reason it may be expected that the results of these cases of limited section of the sac will approximate to the results of Petit's operation, to which they bear a certain resemblance, and that they will bear no very unfavourable contrast to it, although

its principle is not so perfectly carried out. It should not be considered that the necessity to open the sac implies either a greater degree of constriction of the hernial contents or a consequently greater severity of case from organic lesion, than in instances in which no such necessity occurs. It appears that the nature of the structure which causes the constriction, rather than the degree of constriction, however great, is the ordinary source of failure.

Thus, a stricture may be caused either by the neck of a hernial sac, or by the margins of the abdominal aperture, wholly independent of the sac. The degrees of constriction arising from these causes may be equal, and the consequent organic lesion may be in no respect different. Yet, in the former case, the surgeon will most frequently fail in his attempts, and he obliged to open the sac to enable him to return the contents into the abdomen; while in the latter, success will almost invariably attend his endeavours, unless adhesions have occurred within the sac.

Cases, as respect the hernial contents and the degree of constriction which thay have suffered, may therefore be quite parallel, but differ widely in the amount of difficulty to be encountered in the performance of Petit's operation; and although failure of success involves a partial exposure of the contents, it does not necessarily imply a greater amount of danger, except that which arises from the opening itself. It is also to be expected that the results of these cases will be more favourable than the results of the ordinary operation, provided exposure and irritation are elements which generally militate against success, for these are (as already stated) almost wholly avoided.

With respect to the causes for opening the sac in these twenty-one cases, it appears that in three Petit's operation was successfully completed, but the sac was opened after the reduction of the strangulated parts into the abdomen, to remove some doubts as to their perfect liberation. The proceeding in each case, however, was ascertained to have been wholly unnecessary.

In ten the stricture was caused by the neck of the sac.

In one the stricture was at the inner ring.

In one the hernia (femoral) extended to the umbilicus and into the scrotum, the intestine being very greatly distended by flatus, and having its peritoneal tunic rent by the distension.

In two the opening was accidental.

In four the cause of the sac being opened is not stated.

When an analysis is made of the different kinds of hernia, a great disproportion is found in the amount of success attending the attempts to complete the operation; from which we may infer the difficulties that have been encountered in each respectively, and also what are probable in other cases. Amongst the fifty-four cases, there were thirty-one of femoral, twenty of inguinal, and three of umbilical hernia.

Of the thirty-one cases of femoral hernia, the sac was opened in seven, of which one died, and not opened in twenty-four, of which one died.

Of the twenty-cases of inguinal hernia, the sac was opened in thirteen, of which two died; and not opened in seven, amongst which number there was not any death.

Of the three cases of umbilical hernia, the sac was opened in one, followed by recovery; and not opened in two, of which one died.

The foregoing statement demonstrates that the performance of Petit's operation has been by far most frequently successful in femoral, and that it has been most frequently necessary to open the sac in inguinal hernia, to effect the reduction of its contents into the abdomen. This result is quite in accordance with our expectations, and might have been anticipated from the difficulties to be encountered from the usual seat of stricture in such cases. All surgeons agree that the stricture is occasionally seated in the neck of the hernial sac, but a difference of opinion exists as to its supposed frequency. Those who deny its frequency suppose that the constriction, in many cases, is caused by the fascia which immediately invests the sac. I agree with those, however, who think that the constricting cause is most frequently seated in the neck of the sac, and results from a thickened condition of the peritoneum at that part, the breadth of which varies in different cases. Of the twenty cases of inguinal hernia enumerated, I find by my register that the seat of stricture is stated to be in the neck of the hernial sac in no less than fifteen. When so seated, it has been mostly found, not at the abdominal apertures, but a little below the external ring, the distance varying from half an inch to an inch. I have, however, seen it as much as three inches, producing the hour-glass contraction of the hernial sac. It is generally supposed, that when the stricture is produced by a thickened state of the peritoneum at the sac's neck, Petit's operation cannot be by any means successfully performed. The supposition is not wholly correct. It is true, that the difficulties of performance are very greatly increased, but they are not insurmountable. In confirmation of which assertion, I find that the seven cases of inguinal hernia in which Petit's operation was successfully completed, five are stated to have the seat of stricture in the neck of the sac. Before proceeding further, it may be advantageous to describe the mode of proceeding which I have usually adopted in such cases. The first step, before any incision is commenced, is to ascertain the exact spot at which the stricture is situated; for it must be evident that, without such information, the necessary incisions are liable to be directed to a point different from that in which they are really required. This information (as more fully stated in the Medical Gazette, vol. i. 1839-40) is attained through a general knowledge of the fact, that the stricture prevents the communication of impulse from one part of a tumour to another, beyond the stricture. Nothing more, therefore, is required in availing ourselves of that knowledge, than to press the tumour firmly between the fingers of one hand, with a view to cause impulse, while with the fingers of the other hand at the neck of the sac the precise point

at which impulse ceases is carefully ascertained. At that point will be found the seat of stricture. Having obtained this information, the next step is, to incise the integuments, so that the centre of the incision shall be directly over the stricture, a proceeding easily accomplished by causing a transverse fold to be pinched up between the fingers, and divided by transfixing it with a straight bistoury in a direction parallel with the long axis of the tumour. The various fascias are subsequently divided, until the neck of the hernia is fairly exposed. If this be carefully and completely done, a depression will usually be observed at the seat of stricture, presenting a more contracted appearance at that part than at others. To the touch this contracted part feels thick, and often hard, while into it thin layers of fascia dip, which may be mistaken for the stricture itself, but which may be divided wholly independent of it, and no relief arise from the division. When these layers are turned back, the real stricture is exposed to view. In proceeding further than this point much caution is required. The remaining object to be attained is, to incise, or rather scarify, the exposed and thickened peritoneum (which forms the stricture at the sac's neck) in one, two, or three places, without completely dividing it. By these scarifications, the stricture becomes so weakened, that it is placed in a position most favourable for yielding to the pressure of the taxis, and, consequently, most favourable for its successful attainment, a circumstance which is much assisted by the removal of the support which it previously derived from the surrounding fascias in their entire state. It must be evident that, in thus dealing with a stricture so seated, it is somewhat difficult to limit the incisions, so as to avoid its complete division. Should this division happen, an opening is necessarily made into the hernial sac, and the attempt to complete Petit's operation becomes a failure. Yet the opening thus made being of small extent, there is little consequent exposure of the hernial contents. It is often sufficient, however, without further enlargement, to admit the successful application of the taxis, in which case little less than a successful attempt has been attained in the performance.

It has occasionally occurred that the strictured part has been rendered so thin and weak by the scarifications, as to give way under the pressure of the taxis, even when moderate in amount, and the fluid contents of the sac have escaped by the opening, and on one occasion with a small portion of intestine. In this case the intestine was readily replaced within the sac, and afterwards reduced into the abdomen by the taxis, without any consequences worthy of note.

When the stricture is caused by the margins of the external ring, the division of it is of easy accomplishment, by introducing the hernia-director beneath, and dividing it with a bistoury. On the contrary, when the stricture is at the internal ring, the division is extremely difficult, in consequence of the depth of its situation. The attempt is to be made after the same manner by the introduction of a director, and by the use of a common bistoury.

For the relief of femoral hernia, Petit's operation has been much more frequently successful than for inguinal. Thus, of thirty-one cases of femoral hernia in which that operation was attempted, it was successfully performed in twenty-four, being more than three-fourths of the whole number.

The rate of mortality has been so slow in these cases, that the confidence of surgeons in the mode of operating appears fully justified.

There is great variety in the forms of femoral hernia. In the more common forms the tumour rises over Poupart's ligament, to a greater or less extent, sometimes considerably overlaying the anterior surface of the tendon of the external oblique muscle. It sometimes obscures the external inguinal ring, in which case it becomes liable to be mistaken for inguinal hernia. In other cases it rises to the spine of the ilium or even to the umbilicus; of which I have seen one example. In all such cases the femoral ring is obscured by the tumour, and there is an apparent difficulty in reaching it for the purpose of dividing the stricture without opening the sac. The difficulty in most cases is not real, although it is possible that in some it may form a serious obstacle to the operator's proceedings, or even prove insurmountable.

The operation is generally one of easy performance, and may often be accomplished with a safety and a dispatch by no means commonly to be witnessed in the ordinary operations for hernia.

When the tumour thus rises over Poupart's ligament, there are not any certain means of ascertaining the precise seat of the stricture until the ligament itself is exposed by the operation. Yet it is so constantly within a very short distance of the femoral ring, that we may, for the purposes of the operation, assume the ring to be the part to which we may most advantageously direct the necessary incisions. It is, however, necessary to recollect, that it not infrequently happens that the real seat of stricture is on the thigh, to the extent of half or three-quarters of an inch below the ring. In this case it is caused by bands of fascia, which immediately invest the sac at that part; they are probably derived from the transversalis fascia, and have been described as the fascia propria of the sac.

The femoral ring being the desideratum, it becomes the question how that aperture can be most readily reached. When the tumour rises as described, an incision upon it directly over the femoral ring manifestly involves a necessity of subsequently directing the incisions to its upper part, after which they must be directed downwards, between the tumour and tendon of the external oblique muscle, to the ring. In this manner a circuit would be made, in some instances of probably more than one half of the tumour, a very great part of which would in no way assist the surgeon in the attainment of his object; but, on the contrary, would delay his proceedings, prolong the pain, and increase the dangers of the operation. It is far preferable to avoid incisions over the tumour as much as possible. This may be accomplished to

a very great extent by the plan of operating which I have usually adopted in such cases.

It will be recollected that there is almost always a groove or depression of the integuments, which defines the upper limits of the tumour upon the abdominal surface. Where no depression can be seen, the boundary of the tumour may be ascertained by the pressure of the finger in that situation. A fold of integuments is to be pinched up at that part, and divided by transfixing it with a narrow knife, so that the incision, when the skin is replaced, shall fall perpendicularly to the body, with its centre opposite to the depression referred to. By a few strokes of the scalpel the tendinous expansion of the abdominal muscles is to be made bare; after which a finger should be introduced as far as Poupart's ligament, between the tendinous expansion and the tumour, when the latter rises upon the former. The ligament being thus exposed, a hernia-director is guided under it by the finger into the femoral ring, the margin of which may be safely and easily divided in an upward direction with a common probed bistoury, and the taxis applied in the usual way. Should the margin of the ring have formed the stricture, the taxis for the most part succeeds very readily, and the operation is completed in a very short time. But should the stricture be caused by the bands of fascia propria referred to, the director will have passed over them as it entered the femoral ring, in which case any amount of division in an upward direction will be of no avail. When the taxis does not succeed readily, these bands of fascia may generally be suspected to be the cause of failure. The fact may be made sufficiently clear by introducing the finger upon the neck of the sac, under Poupart's ligament, while the body of the sac is pressed between the fingers and thumb of the other hand, when it will be discovered that no impulse is communicated to it by such pressure. By a little attention the bands may be detected crossing the neck of the sac from half to three-quarters of an inch below the ring, and may be divided by insinuating the nail of the fore-finger of the left hand under them from above, and by carrying the point of a probed bistoury along the nail, with its blunt edge towards the sac. The division is made by the surgeon drawing the bistoury away from the sac towards himself, a proceeding which, if properly performed, avoids all danger of wounding the sac or its contents. It is probable that to a want of knowledge of this frequent seat of stricture, so far below the femoral ring, caused by these bands of fascia, failure of success in the performance of Petit's operation in this kind of hernia is often to be attributed. With this knowledge I believe failure will be infrequent, unless from causes which exist within the sac, arising from changes in its contents, a circumstance by no means common in cases of recent descent.

[Mr. Luke does not speak confidently of umbilical hernia, but he is disposed to think that Petit's operation is not so well suited to this as to other forms of hernia, except when the tumour is small.]

Medico-Chirurgical Transactions, 1848, *p.* 99.

94.—ON OBSTRUCTED HERNIA.

By JOHN GAY, Esq., Surgeon to the Royal Free Hospital, &c.

[Mr. Gay, in the present paper, endeavours to define with more precision than has hitherto been done, the characters of those cases, by no means uncommon, to which the name of obstructed hernia has been applied. He begins by relating the case of a lady, the subject of umbilical hernia, who died from obstruction of the bowels; the hernial tumour being perfectly flaccid and free from tenderness. After death it was found that the intestine had suffered no constriction, but that it was adherent on one side to the mouth of the sac. Mr. Gay remarks:]

The case is one of death from an irreducible hernia without evidence that either inflammatory action or constriction had been its immediate cause; or, as Mr. Lawrence well defines it, from an interruption of the function of the protruded bowels without the presence of stricture or inflammation. The inference is, that simple irreducibility is a condition of a hernial tumour replete with danger to the ruptured person.

The circumstances which render a hernial tumour irreducible are not always the same. For the most part the bowel is retained by adhesions to the sac, either mediately or immediately; but this is not always the case, for in several cases of old umbilical hernia which have resisted the usual efforts at reduction, and have therefore been considered irreducible, I have found the knuckle of intestine unadherent, but so enveloped as to be held fast by a portion of omentum, which was adherent to the sac, the presence of which had obviously prevented the due effects of the taxis from reaching the intestinal nucleus. But are unadherent intestinal herniæ equally liable to become fatal by "obstruction" as those in which adhesions to the sac exist? From my note book the following is taken:—

In the month of August, 1844, M. O., æt. sixty-three, a *very fat* woman with an enormous hernia (umbilical) was brought into the Royal Free Hospital for an erysipelatous affection of the leg. Her condition was one of extreme prostration; but from the employment of stimuli, and the application of cotton wool to the extremities, she began to recover. On the third day after her admission, however, her bowels became confined. (Opium had been administered with ammonia, on account of the pain and restlessness which constituted, beside the affection of her leg, the principal symptoms at the time of her admission). A mild cathartic was administered, but ineffectually. On the following day the abdomen became tense; she refused her food on account of a distressing sense of nausea which now set in; her pulse became quickened, 110 in the minute: the tongue brown and inclined to be dry; to which succeeded great restlessness. The abdomen was examined, but, on account of her excessive obesity, without any prospect of obtaining therefrom any satisfactory result. The hernial tumour *was found to be perfectly free from pain, and flaccid;* and not to have in the least

degree increased in bulk. The hernia had existed for many years; but she had used a concave tin support, kept up by means of a broad bandage of her own construction, which embraced the abdomen. A slight effort was made to reduce it; but from its apparent fixedness, and the supposition that the hernial contents were irreducible, the attempt was not persisted in.

Injections of castor oil and turpentine were given, calomel administered in doses of two grains, with three grains of the extract of colocynth every four hours, as the saline effervescent aperients were found to be objectionable from their bulk.

On the following day her condition was worse. She suffered from constant nausea; and vomiting was produced by every attempt to take either food or medicine. The abdomen was generally more distended. The hernial tumour remained, however, still flaccid and free from uneasiness; the pulse had increased to 130; the tongue had become dry; hiccup set in; in short her death, which took place on the evening of the third day, was obviously at hand.

The *post mortem* examination disclosed a large knuckle of intestine (a portion of the ascending colon, with the last part of the cœcum) in a state of flaccidity, empty, discoloured, and readily broken up in the hernial sac. It was everywhere surrounded by omentum, the tissue of which had evidently become hypertrophied since its incarceration, which was here and there adherent to the sac, but not by very strong bands. The sac was adherent to the adjacent integuments. The mouth of the sac, which exhibited a very firm edge, was large; and from its size could not exert any constriction on the neck of the hernial mass. It was, however, apparent, that although the *omentum* enjoyed some amount of freedom from some room which still existed between it and the sac, the *bowel* itself was closely confined by the omentum. The whole of the intestinal canal above the umbilical ring was distended with fluid and gaseous matters; and in some parts the small intestines exhibited patches of old, but not of recent, inflammatory action. The peritoneal cavity contained some fluid; the heart was large and very flabby; the lungs emphysematous; the lining membrane of the bronchi in a state of chronic inflammation; the liver large and fatty.

This case clearly demonstrates that not only adhesions, but other causes of limitation to the function of a herniated bowel, may, *under peculiar circumstances*, be a source of fatal obstruction. Mr. Stephens made the existence of adhesions *essential* to the production of symptoms characteristic of obstructed hernia; but I think it is clear that the class thus characterised is too limited, and should be made to include cases analogous to that which has been just related. But why are herniæ allowed to become irreducible? Doubtless in most instances on account of personal inattention to them, and of neglect properly to adjust the mechanical means which are used to prevent their descent. But this is not all. The doctrine, that absolute *strangulation* of herniated parts can alone justify recourse to an operation for their reduction, is favourable to that view of an

irreducible but *not strangulated* hernia, which regards it as less free from peril than is absolutely the case. Thus a hernia becomes suddenly protruded: the surgeon is called and finds it simply incarcerated, but not in a condition to admit of the means being used for its reduction, from the protruded parts being in a state of inflammation. Remedies are successfully adopted for putting a check to the inflammatory action; but lymph has been in the meantime effused, the *materiel* of adhesions between the contents of the sac, and the sac itself, and the hernia becomes at length irreducible, and too frequently is permitted to remain so. The axiom should clearly be that a patient who has an irreducible hernia should be warned of the peril of not having it constantly and effectively supported; and that a recently incarcerated, though not strangulated, hernia should be returned, even by the aid of an operation, rather than be allowed to become irreducible from the subsequent formation of adhesions.

The importance of this remark is still more obvious from the experience of most surgeons in reference to old, especially umbilical, herniæ. Of twenty-three cases of persons dying with old umbilical, ventral, and inguinal herniæ, under my own notice, in nineteen some disease of the chylopoietic viscera was the immediate cause of death, and in seventeen the fatal disease had a still closer relation to the existence of the hernial tumour.

[The affection under consideration is of a very insidious nature, and its symptoms are not very well marked. In common with other forms of hernia, we have obstructed bowels, a tympanitic abdomen, and more or less vomiting; flaccidity of the tumour, and absence of pain are more characteristic symptoms. Mr. Gay thus gives the diagnosis:]

Briefly, then, obstinate constipation, low vital powers, an old and irreducible hernia in an unusually flaccid and painless state, are the positive indications of an "obstructed hernia."

What is to be done? No delay should be suffered when these symptoms coexist. The hernial tumour should be cut down upon, the incarcerated bowel relieved, if necessary, by the breaking up of the adhesions, and the patient's strength revived by the administration of stimuli.

I am aware of the difficulty and danger ordinarily attendant upon such an operation: Arnaud points them out most forcibly, especially when the hernial parts consist of *omentum*, as well as intestine. That forcible writer says:—"Le nombre des inconveniences est si grand, qu'il n'y a que ceux qui ne sont eclairés que par les lumières trop distantes de la speculation a la pratique, qui osent proposer ou entreprendre de pareilles operations, pour des hernies habituelles, que l'on peut porter sans danger de la vie;" and subsequently shows that the sources of danger are, "les irritations spasmodiques, la fièvre, les inflammations, et la suppuration qui font peur aux malades, sans qu'il soit possible quelquefois de vaincre ces accidens."

Surgical science, however, has done much to lessen the proba-

bility of the occurrence of these accidents after interference with hernial tumours; and I believe that the doctrine of *non-interference with the fasciæ and other parts of the hernial mass not immediately involved in its detention*, if carried out, would render such operations comparatively harmless as far as such consequences are concerned. The cutting and separation of fasciæ in operations for hernia have nothing to do with the *relief of the parts*—they are simply *guides* in the course of the operation, and as such ought to be abandoned. The operation can be performed, and that easily, by a fair anatomist, without such wholesale (as I have often seen them) *lamellar* separations, and would thereby be freed from much of the fatality which at present proceeds from this process, *and this process alone.*

One word about the return of old herniæ which have adhesions to the sac, and which have become sources of pain and other inconvenience. These cases are too frequently regarded as irreducible, and are allowed to remain until more serious evils, in connexion with them, call for interference—when in the majority of instances the treatment, which before might have been successful, cannot be adopted.

The older surgeons, Le Dran and Arnaud, contended that old and adherent herniæ, by caution and perseverance in the employment of suitable means, can be returned; and that it is not necessary for the patient's safety, and restoration to comparative health and comfort, that the adhesions between the viscus and the sac should be destroyed. Arnaud recites interesting cases to this effect—one of an old woman, sixty-eight years of age, who was quite disabled by an old hernia for twenty years:—"La malade etoit fort agée, et la tumeur très ancienne. Renfermée dans le peau qui formoit la grande lévre, elle occupoit tout l'espace depuis l'anneau jusqu'a la marge de l'anus." The treatment was as follows:—"Elle fut reduite aux bouillons de veau très légers. Elle prenoit tous les jours deux grains de mercure doux. Elle recevoit un lavement emollient, et fut purgée très souvent. On lui faisoit des embrocations huileuses sur le ventre. On lui appliqua un emplâtre de muscilages sur la partie de la tumeur qui n'etoit point ulcéré, et l'on mettoit sur la partie excoriée un linge fin trempé dans un legére dissolution de pierre médicamenteuse fait avec l'eau de sureau. Je lui recommendai d'uriner dans un bassin de lit, sans le lever, de porter la tumeur un peu en dehors d'une main, et d'ecarter avec l'autre la lévre du côte opposé autant qu'il lui etoit possible pour ramener l'urethra à sa direction." The urethra was turned from its usual course by the pressure of the tumour.

To shorten the case. In eight days the size of the tumour was by these means lessened, and on the fifteenth day the whole was returned, and the patient completely recovered.

Modern surgeons have advocated this practice (see Mr. Lawrence's admirable treatise), but its value and efficacy have yet to be taken full advantage of.

Monthly Journal, March, 1849, *p.* 580.

95.—*On Galvanized Springs for Trusses.*—By Dr. T. Stratton, R. N.—[Dr. Stratton having satisfied himself that rusting is the cause of the springs of trusses breaking, got some springs galvanized by the "Galvanized Iron Company." He finds that the springs are thereby prevented from rusting, and believes that they will be much more durable than the ordinary ones.]

Edinburgh Medical and Surgical Journal, Jan., 1849, *p.* 145.

96.—*On Intestinal Obstructions.*—By Benjamin Phillips, Esq., F.R.S., Surgeon to Westminster Hospital, &c.—[Mr. Phillips gives the following as the conclusions to which he has been led by his researches on the subject of intestinal obstruction.]

1st. That intestinal obstructions, dependent upon causes acting within the abdominal cavity, are by no means of rare occurrence.

2nd. That they may occur at any period of life; and that although a particular variety of obstruction may be more frequently seen than another, at a particular period of life, there are still so many exceptions to the rule that we cannot rely much upon the probability that a particular obstruction is present at a given period of life.

3rd. That the diagnosis of the existence of an obstruction is usually not difficult.

4th. That the diagnosis of the nature and the seat of the obstruction is, in most cases, most uncertain and unsatisfactory.

5th. That beyond the general history of the case, the most probable means of ascertaining the seat of the obstacle is, to follow carefully the distended intestine up to the point of obstruction.

6th. That under ordinary treatment these cases are fatal in the proportion of, probably, seven out of nine.

7th. That although no reliance can be placed on purgatives, on mercury, on opium, or any variety of injection, and that although in many cases they seem to aggravate the suffering, yet as it is unquestionable that in some cases they have been administered with relief, we cannot advise that they should be discarded, but we doubt the prudence of continuing to use them beyond two or three days.

8th. That the interference by surgical operation is justifiable when three or four days have passed without any relief from ordinary means (provided the constipation be complete and vomiting of fæcal matter continue), because it affords a greater chance for the preservation of life than ordinary means.

9th. That if the indications as to the seat of the obstruction be sufficient to satisfy the surgeon, it is at or near that point that the incision should be made; but if there be much doubt, it is most prudent to make the incision on the median line.

10th. That if it be found impracticable to remove the cause of the obstruction, or imprudent to make any extended search for it, relief may be obtained by forming an artificial anus as near as may be prudent to the seat of the obstruction; and that if it be, as it

frequently is, near the termination of the ilium, an incision on the median line admits of its accomplishment as near as may be to the termination of that intestine.

Medico-Chirurgical Transactions, 1848, *p.* 34.

97.—*Use of Chloroform in Strangulated Hernia.*—[At a meeting of the London Medical Society,]

Mr. HANCOCK stated that he had lately found chloroform of great service in a case of strangulated inguinal hernia. He was called lately to operate on a man suffering from a large inguinal hernia; all the usual means with the taxis had been employed without any good result. He found, on handling the tumor even in a gentle manner, that the man was put into the greatest pain. He suggested the use of chloroform. It was employed, and in less than five minutes the hernia was completely returned. He had found, however, that this agent did not succeed in a case of femoral hernia, to which he had been called, in a lady. The gut had been down for twenty-four hours, and signs of peritonitis were present. Chloroform was administered, but it took no effect. The operation was performed; the patient recovered.

Mr. Pilcher had had no personal experience in the matter, but he had heard of the successful use of chloroform in several cases of hernia which had been brought to St. George's Hospital to be operated upon.

Medical Gazette, *Feb.* 16, 1849, *p.* 301.

98.—*On Piles.*—By J. P. VINCENT, Esq.—Internal piles Mr. Vincent cuts off by the knife; then he directs the injection of a solution of sulphate of iron in water, one grain to one ounce, which arrests all inconvenient bleeding. Of ligatures he disapproves, as painful and not always safe. We have known it cause fatal inflammation of the rectal veins.

In prolapse of the rectum, he recommends, as very useful and effectual, the injection of a solution of sulphate of iron; and under the employment of this remedy for one week, two weeks, or at most one month, he has seen the disease so often cured, that he is disposed to regard operation as unnecessary.

Edinburgh Medical and Surgical Journal, *Jan.* 1849, *p.* 184.

URINARY ORGANS.

99.—ON THE OPERATION OF LITHOTRITY.

By J. ADAMS, Esq., Surgeon to the London Hospital, &c.

This operation is usually one of no great difficulty, and the following are the steps successively to be pursued in its performance. Having satisfied yourselves of the existence of a stone, a catheter

is to be introduced, and the water remaining in the bladder is to be drawn off: this is an important step, as without it you cannot tell the quantity of water that you may with safety inject; having done this, you proceed to inject the bladder for the purpose of unfolding its coats and defending its mucous membrane from the contact of the lithotrite. The lithotrite is then to be carefully passed, and the stone felt with it: there is seldom much difficulty in this, but the difficult part of the business, namely, the seizing of the calculus, now begins. In order to accomplish this with facility, the instrument should be pressed to the back part of the bladder; the handle is to be raised, by which its curved extremity is depressed; and the lithotrite is to be carefully opened. You perceive that by this manœuvre you obtain as large a space as possible for the opening of the instrument; and at the same time, by rather forcibly depressing the end of the instrument, you naturally depress the inferior surface of the bladder, and thus, narrowing the viscus in the transverse diameter, the stone readily falls between the jaws of the lithotrite: this is at once ascertained by endeavouring to press together the two parts of the instrument. Having ascertained the seizure of the stone, you draw the instrument forwards to the centre of the bladder, and set to work with the screw and break up the stone. If the stone escape the instrument, the rectangular bed is to be depressed so as to favour the rolling of the stone towards the separated jaws of the lithotrite: sometimes a gentle shake of the lithotrite will move the stone into it. I need scarcely observe that the seizing of the stone with facility is one of the most important points in the operation. Now in reading the work of Heurteloup on the subject of lithotrity, I do not find any directions given as to the best mode of effecting this desirable end: indeed, it appears rather kept out of our view. I do not say designedly, but at any rate you are directed to adopt such and such a proceeding when you have secured the stone, but you are not directed how to do this. On reference, however, to the writings of Sir Benjamin Brodie and Mr. Key, I find ample directions to this end; and I consider it highly necessary to insist on this point, as without a due attention to it you may go fumbling with the instrument, opening it and shutting it, turning it to the right and to the left, upwards and downwards, to the great and often fatal injury to the bladder.

Having succeeded in breaking the calculus, if the patient is not suffering pain you may endeavour in the same manner to take hold of a fragment and crush it, always taking care to screw your instrument completely home; and thus three or four pieces may be broken up at the first sitting. At successive intervals of four, five, or six days or more, according to the sufferings of the patient, the instrument may be again applied, so as to break up the entire stone and favour its expulsion. Do not annoy your patient by washing out his bladder, but leave it to expel its contents by the natural efforts.

In the case before us, after the operation the patient complained

of a slight degree of pain on his passing water, and the water was bloody and loaded with thick tenacious mucus: entangled in the mucus there were traces of the debris of the calculus in the form of white sand. He did not pass many fragments after the first sitting: he was ordered a hip-bath night and morning. All irritation speedily subsided, and the operation was repeated at intervals, until the whole of the stone was broken up and had passed by the urethra; some of the last fragments being of very large size: they were, however, voided without any extraordinary pain.

In regard to the getting rid of the contents of the bladder, I am strongly of opinion that the less interference there is on the part of the surgeon the better. Let the patient drink freely of barley-water, and give him an alkaline mixture with tincture of hyoscianus, and you will find the bladder relieve itself much better than you can relieve it by the aid of any instruments, however ingeniously contrived. I am averse to the exhibition of opium after the operation, unless the patient should have a shivering fit, and then it may be desirable to employ it: opium has the effect occasionally of inducing retention of urine, and therefore I would not use it unnecessarily: a dose of castor oil may also be given the morning after the operation, and the hip-bath is to be employed, as in this case, night and morning.

Medical Gazette, March 9, 1849, *p.* 432.

100.—*Hint on Sounding.*—By Samuel Solly, Esq., F.R.S., &c.—When you sound for stone, use rather a short and straight instrument at first. Introduce it very slowly and cautiously, so that the point of the instrument sinks into the post-prostatic fossa, in which the stone is generally situated. If you do so, you will generally strike the stone at once; but if you sweep a sound, with a good full curve, into the bladder rapidly, you carry your instrument over the stone, and you may turn the point of it all round the bladder in vain. *Medical Gazette, Dec.* 29, 1848, *p.* 1087.

101.—*On Incontinence of Urine after Lithotomy.*—By Samuel Solly, Esq., F.R.S., &c.—[In a clinical lecture upon urinary diseases, Mr Solly, speaking of incontinence of urine after lithotomy, observed:]

For this symptom, which is not a common consequence of lithotomy in the male, I have prescribed the extractum nucis vomicæ, having found it very useful in cases of incontinence from other causes. Many of you will, I think, remember a case that I had, in Lazarus Ward, about six months ago, where the patient, about twenty years of age, wetted his bed every night. This man got perfectly well under this medicine. I had a similar case in private practice just about the same time equally successful. I give very small doses at first, gradually increasing them. Kain took the 8th of a grain three times a day; he is now taking a grain, and he is improving, though slowly. He can retain his water much better than he could a week ago.

Medical Gazette, Feb. 2, 1849, *p.* 184.

102.—*On the Causes of Death after Lithotomy.*—By Bransby Cooper, Esq., F.R.S., &c.—In the post-mortem examination of patients who have died from the operation for stone, the immediate cause of death is usually not very apparent, but a general diffused subacute inflammation of the peritoneum presents itself, with more or less effusion of flocculi of non-plastic matter, resembling very much the appearance in death from puerperal fever. Not unfrequently a sloughing of the cellular membrane is found passing from the prostate upwards, between the bladder and rectum, filled with a sanious effusion, and resulting from the fascia of the prostate having been cut through, and allowing of the extravasation of urine, and this is by far the most frequent cause of a fatal result in the operation for stone. A general diffused subacute inflammation is also found over the surface of the peritoneum, attended by an effusion of nonplastic matter, sufficient to produce a feeble adhesion of the folds of the intestines to each other, but being very different from that adhesion caused by acute inflammation. Hiccup and sickness, which are so frequently attendant upon this condition, indicate the extension of the inflammation to the peritoneal coverings of the stomach and diaphragm, and must be always regarded as a very dangerous symptom. The mucous membrane of the bladder is frequently found highly vascular, or its vessels replete with coagulated blood, giving the appearance of ecchymosis: sometimes it is also found ulcerated. The muscular coat is generally thickened, so as to encroach upon the cavity of the bladder and diminish its capacity, which may be a cause of the contractions of the bladder around calculi, to which I have already alluded. The ureters are not unfrequently found much dilated; and I have met with a case, in the examination of a gentleman who had died from stone, in whom the left ureter was impervious at its termination in the bladder, but was extremely dilated from that point up to the kidney, and a large diverticulum, of two inches in length, filled with urine, had formed in the ureter, just above its termination in the bladder. The kidneys are frequently the subject of disease in cases of stone: they may be either distended with calcareous matter or with urine, to an extent which may have led to the interstitial absorption of the whole of their secreting structure, or, as sometimes happens, they will be found much wasted; but such extensive disorganization must have been indicated during life, and would have precluded the performance of the operation.

Medical Gazette, Feb. 2, 1849, *p.* 178.

103.—*Hint on the Diet after Lithotomy.*—By Bransby Cooper, Esq., F.R.S., &c.—Patients should not be kept on spare diet after the operation of lithotomy, nor, indeed, after any severe ordeal of the kind. It should always be remembered that you cannot diminish constitutional power without increasing irritability; and that, consequently, support is generally requisite, and should be early prescribed.

I am sure that one of the greatest modern improvements in the treatment of patients who have undergone surgical operations is with respect to the better diet that is early advised: and hence, I believe, arises the greater comparative success of operations in this than in any other country.

Medical Gazette, Jan. 19, 1849, *p.* 95.

104.—*On the Operation for Phymosis.*—By W. Colles, Esq., Surgeon to Steeven's Hospital, Dublin, &c.—[After alluding to the various operations for phymosis, all of which are in his opinion more or less objectionable, Mr. Colles says:]

I have been in the habit, for some time, of removing the deformity by a simple and very effectual operation. I seize the edge of the prepuce, at its fold forming the narrow band, in the left hand, and holding the scalpel in the right, and at right angles with the penis, I remove a circular portion of skin, about a quarter of an inch wide. The outer fold of skin, being loose, is then drawn back on the penis, leaving the glans covered by the inner and tighter fold. I then divide this layer about half way back, more or less, slitting it up exactly in the centre, by passing a sharp-pointed bistoury under it. We have now the outer fold of skin loose, with a large circular orifice; the inner, or more contracted portion, presenting also an orifice, but larger by double the perpendicular incision, which forms two angular flaps.

I then turn these flaps outwards, and by a suture attach each angle to the edge of the external skin, at about a quarter of its circumference from the frænum; a slight suture at the frænum completes the operation. I then draw all forward so as to cover the glans.

In two or three days I remove the sutures, and generally find the wound healed, leaving a covering for the glans, differing in no respect from the natural and perfect prepuce; and in some cases it would be difficult to know that any operation had been performed, or that any had been required, on this part.

Dublin Quarterly Journal, Feb. 1849, *p.* 250.

105.—*On the Treatment of Orchitis,*—By Bransby Cooper, Esq., F.R.S., &c.—[After stating that in persons of a full plethoric habit, blood should be taken from the arm, and that in other cases leeching should be employed, Mr. Cooper says:]

In my own practice I always recommend cupping on the loins in addition to the leeches, taking away about ℥viij. of blood; and I have found, by experience, that the pain is relieved with much more certainty by this plan than when leeches alone are employed; I also generally employ the following as internal remedies:—

℞. Hydrarg. chloridi, gr. iss.; pulv. antim. potassio-tartratis, g. ⅓; pulv. opii. gr. ½. M. Ft. pilul. statim sumenda.

℞. Magnes. sulph. ʒiij.; liq. ammon. acet. ℥j; liq. antim. potassio-tartrat. ʒiss.; træ. hyoscy. ʒiss; aq. menth. virid. ℥vij. M. capt. cochl. larga. ij. quâque tertiâ horâ donec alvus bene responderit.

As a local application, I have also found the following lotion beneficial:—

℞. Ammon. hydrochlor. ʒiss; sp. vini. rect., liq. amm. acet. aa. ℥ij.; aquæ destil. ℥iv. M. Ft. lotio sæpe applicand.

If the inflammation be not subdued by these means, and the vessels of the scrotum appear to be congested, they must be opened with a lancet, and copious bleeding promoted by warm fomentations: the patient should be kept in a recumbent position, and made to abstain entirely from animal food.

[If the affection of the testis arises from metastasis from the urethra in gonorrhœal inflammation, we must apply warm fomentation to the scrotum, perineum, and penis, in order to re-establish the discharge, and when this is done, calomel and opium given every night is stated by Mr. Cooper to be the best means of preventing a return of the disease. As to rheumatic orchitis, Mr. Cooper observes:]—

Persons who are subject to rheumatism appear to be especially predisposed to a peculiar description of orchitis which seems to attack the tunica albuginea: this form of the disease may be diagnosed, by its commencing without any apparent exciting cause, if we except the rheumatic tendency of the patient; the disease generally yields without difficulty to the administration of alkalies and a small dose of colchicum at bed time. Individuals of gouty diathesis are also liable to a somewhat similar affection. I had a gentleman, a martyr to gout, for many years under my care, in whose case the attacks were frequently preceded by discharge from the urethra and swelling of the testicle, without his having subjected himself to the possibility of venereal infection.

It sometimes happens that after acute orchitis (whatever its origin may be) has been subdued, enlargement and hardening of the testicle still remains, unattended, however, by pain or uneasiness: the swelling is best reduced by the application of the following ointment:—

℞. Ung. hydrarg.; cerat. saponis, aa. ʒij.; camphoræ, gr. v. M. ft. unguentum.

The ointment should be spread upon lint, strips of which should be laid smoothly over the swelling, and these confined by adhesive plaster applied so as to maintain considerable pressure upon the parts. Some practitioners have recommended pressure as the most effectual means of subduing the swelling from acute inflammation in its early stages, but I do not much advocate such practice, excepting as a secondary mode of treatment.

Medical Gazette, Feb. 16, p. 266.

106.—ON THE TREATMENT OF HYDROCELE

By Bransby Cooper, Esq., F.R.S., &c.

In young children, the cure of simple hydrocele, if not spontaneously produced, may generally be effected by local applications; and I have frequently produced absorption of the fluid by the use of the following lotion:—

℞. Amm. hydrochlor. ʒj.; liq. am. acet.. sp. vini. rect. aa. ℥ij.; aquæ destil. ℥iv. M. Ft. lotio sæpe applicand.

Should this treatment not succeed, acupuncturation is almost infallible in children. In later periods of life, hydrocele sometimes undergoes a spontaneous cure, from a blow or any cause which induces inflammation, or from a rupture of the tunic attended by diffusion of the fluid; and I think I have also known it result from an altered action being established without the tunica vaginalis being torn.

[Speaking of the various operations which have been recommended for the radical cure of hydrocele in the adult, Mr Cooper observes:]

Incision was the operation employed by John Hunter: it was performed in the following manner:—He made an incision into the tunica vaginalis, allowing the fluid to escape, and then, sprinkling flour on the surface of the tunic to excite inflammation, the membranous sac filled up by granulation. This operation, however, so frequently led to sloughing, that Mr. Pott repudiated it, and substituted that of injection, which is now almost always employed. In those cases, however, in which there is a great difficulty in forming a diagnosis, incision is a most safe mode of proceeding, provided no further means be employed to produce inflammation of the tunica vaginalis. In June 1839, I admitted a patient, aged sixty-four, into Stephen's Ward, Guy's Hospital, who was the subject of a large scrotal tumor, which had formed so rapidly, that I doubted whether it was hydrocele or hæmatocele; this doubt was strengthened by the perfect opacity of the tumor, and I proceeded therefore to open the tunic by way of exploration: a pint of brownish serum was evacuated, and I found the tunica vaginalis extremely thickened, in some parts cartilaginous, and at its upper portion ossified: the patient was, however, perfectly cured by this simple operation. My colleague, Mr. Cock, also treated a similar case by incision, but in that instance the whole cartilaginous tunic was thrown off by a sloughing process; but the patient also recovered. I have myself had several cases in which I have adopted simple incision as the mode of treatment.

[Mr. Cooper does not, however, approve of this operation, except in such cases as offer a difficulty in ascertaining the precise nature of the disease. The operations by excision, caustic, and seton, he decidedly condemns.]

Medical Gazette, March 2, 1849, *p.* 358.

[Mr. Cooper now always uses the iodine injection in the radical cure of hydrocele, as he finds that its use is invariably successful, and is free from the ill effects which frequently followed the employment of the solution of zinc, or wine and water. He says:]

One circumstance has struck me as very singular in the use of this injection; it is, that it frequently produces so little pain that I have, in some cases, considered failure as almost certain, and yet, without either swelling or pain, the cure has been completely effected. I subjoin one or two cases in illustration of this fact. The Rev. Mr. H., of Norfolk, had had hydrocele on both sides for six years; two years ago he had the fluid drawn from off both hydroceles, and had the right side injected with wine and water, but ineffectually: a year and a half after he had the same side injected with solution of zinc, and was cured. The left hydrocele then became troublesome, and he submitted to the injection of wine and water, which proved unsuccessful. He then had recourse to a second operation on the left side, when the surgeon employed the zinc, which had previously succeeded with the right side, but on this trial it also failed. He consulted me in February, 1839, when I injected the tincture of iodine in the proportions already described, and the disease was perfectly cured with little apparent inflammation or pain.

In July, 1840, I injected a hydrocele for a patient of Mr. M'Cann, of Parliament Street, with the iodine injection, in this case also with complete success, although the patient suffered no pain either upon the injection of the fluid or subsequently. An Irish peer came to my house and requested me to draw off the water from his hydrocele. I proposed to attempt the radical cure, to which he replied, "your uncle and three other surgeons have already injected the hydrocele ineffectually, and therefore I do not wish to submit to any further attempt." I stated to him the effect of the new injection, and then with his consent threw in half a drachm of compound tincture of iodine with a drachm and a half of water. The injection produced no pain. His lordship called upon me a week after, and laughed at my remedy, but from that moment, although the circumstance occurred four years ago, he has not had a return of the disease.

The mode in which the cure is effected in all cases of injection, is, I believe, by altering the action of the capillaries of the tunica vaginalis, and not by the effusion of plastic matter, producing the adhesion of the sides of the tunic; for in many preparations of the tunica vaginalis, after successful injection for hydrocele, no such adhesions are found. It sometimes happens that partial adhesions are formed, dividing the tunic into two or more sacs, and in such cases it has occurred that these sacs have secreted fluid, and the hydrocele has put on a complex form, being divided in distinct chambers, as it were, each of which must be opened for the evacuation of its fluid. In tapping a patient for hydrocele, at Guy's Hospital, I found the tumor only partly diminished after the fluid had escaped, and that a transparent fluctuating swelling still re-

mained; this I then pressed against the canula, which I had retained in the first sac, and re-introducing the trocar, punctured it, and let out the fluid. I did not inject this case, in consequence of the peculiarity just named, and as I never saw the patient after, cannot tell whether the disease returned.

The only precaution necessary in the performance of the operation of injection is to push the canula quite home into the cavity of the tunica vaginalis, for if it be only partly inserted, and not beyond the slit at the extremity of the canula, when you inject the fluid you will throw it into the cellular membrane of the scrotum, and not into the tunica vaginalis,—an accident which will probably produce sloughing of the whole scrotum. This accident I have known to occur several times with young operators, who are liable rather to push the trocar gently into the scrotum, than to jerk it in with the quick semi-rotatory motion necessary to its perfect introduction, guarded, as I have already described, as to the extent of its intrusion, by the fore-finger placed on the canula, to limit the length intended to be introduced. When the gentle push onwards of the instrument is the force employed, the shoulder of the canula is very likely to carry the tunica vaginalis before it, without entering the cavity, so that the injection is only thrown into the subcutaneous cellular tissues, the probable result of which occurrence is shown in the following case, described in Sir Astley Cooper's notes. "I injected a hydrocele for a man between fifty and sixty years of age, and the disease returned: about two years after, this patient was re-admitted into Guy's, under the care of Mr. Foster, who gave permission to one of his dressers to inject it; the canula was not properly introduced into the tunica vaginalis, so that the fluid was thrown into the cellular membrane of the scrotum: violent inflammation followed, mortification ensued, and the patient died." I have three times known this accident to occur.

As soon as you find, upon turning the stop-cock, that the injected fluid does not return through the canula, you may be certain either that the injection has been thrown into the cellular membrane, or that the canula has slipped out of the tunica vaginalis: some means must therefore be adopted for the evacuation of the fluid, and this can only be effected by incision. Lay open the tunica vaginalis in the case of the canula having accidentally slipped out, and make several incisions into the scrotum if the fluid be thrown into the cellular membrane, and in either case, if these plans be adopted, the dangerous effects may generally be prevented.

[*Congenital hydrocele* differs from the common species in having a communication with the peritoneal cavity, into which the fluid may be returned by pressure. In this form of hydrocele, of course injection is not to be thought of; a truss should be worn with the view of obliterating the communication between the cavities. Mr. Cooper observes:]

Acupuncturation may be safely adopted in cases of congenital hydrocele that are not cured by the pressure of a truss. The

mode of proceeding is to insinuate the needle into the tunica vaginalis by several punctures, which permit of the exudation of the fluid into the cellular membrane, where it becomes absorbed. Dr. Lewis, of Finsbury Square, was, I believe, the first who recommended this mode of operation for the cure of hydrocele generally, but I acknowledge that I have only found it useful in cases of hydrocele in young children, and on one occasion in a case of congenital hydrocele in an adult.

Encysted Hydrocele is so termed when the fluid, instead of being contained within the tunica vaginalis, is secreted in an adventitious sac; these cysts are well described by Mr. Curling as being analogous to the aqueous encysted tumors which are developed in the kidney and liver, and I think he might have added, other organs covered by a serous membrane, for I have never found analogous cysts excepting under these splanchnic serous coverings. In the testicle they are usually found between the epididymis and its serous covering, but are sometimes placed between the tunica vaginalis and the tunica albuginea of the body of the testicle: in either case upon examination the tumors give the idea that they are completely adventitious, and that they are superadded to the natural structures of the part, while common hydrocele seems to implicate all the natural structures, and is, indeed, merely an inordinate accumulation of a natural secretion.

On the 4th of January, 1845, Mr. Tilsit, of Blackfriars Road, brought me a patient who had a small tumor in the scrotum, which, upon examination, felt precisely like a supernumerary testicle; and, what is singular, when pressed, gave the same sensation to the patient. Upon examination, the tumor, in this case, was found to be quite transparent, which proved it be one of these aqueous encysted tumors. I punctured the tumor with a needle, ordered a lotion of hydrochlorate of ammonia and spirit of wine and water, and a suspensory bandage: the patient perfectly recovered.

December 1st, 1837, a gentleman aged 54, residing near Bristol, consulted me for disease of the left testicle, but stated, at the same time, that he had suffered very little pain or inconvenience. Upon examination, I found a small swelling, about the size of a walnut, situated at the upper part of the left testicle, immediately over the head of the epididymis, occupying the space between it and the spermatic cord. The tumor was fluctuating, and I at first considered it to originate from a varicose state of the veins: but, as I could not empty the swelling by pressure, I examined it as to its transparency, and found it perfectly translucent. I punctured it with a needle, squeezed out the fluid into the surrounding cellular membrane, ordered evaporating lotions and purgative medicines, and directed the patient to wear suspensory bandages lined with oil-silk. This gentleman wrote to me two months afterwards, and described himself as having perfectly recovered.

[*Hydrocele of the cord* is much more difficult to diagnose than hydrocele of the tunica vaginalis, having a great resemblance to bubonocele. As to its pathology, Mr. Cooper observes:]

Mr. Curling seems to have adopted Mr. Pott's opinion, that this disease is an œdematous condition of the cellular membrane of the cord—an anasarcous effusion; but, from two or three cases I have seen, I am inclined to believe that the collection of fluid is within the serous membrane itself, although there can be no doubt that an anasarcous condition of the cord does occur, as in other parts of the body, and which may be cured by the same local and constitutional means employed for anasarca generally.

I remember some years ago seeing the beadle of St. Martin's parish, with Mr. Streeter, then of Drury Lane: this person was the subject of a swelling of the scrotum and spermatic cord, which were both so fluctuating that I was led to puncture the scrotum with a trocar: only a few drops of fluid followed, and the œdematous condition was at once proved. Several small punctures were made, constitutional remedies prescribed, and the patient was relieved; but I believe subsequently died, under the care of Mr Streeter, of diseased kidneys.

I should consider the best treatment for true hydrocele of the cord, whether seated in the inguinal canal or below the external ring, to open the tunic, evacuate the fluid, and apply a truss. I should hesitate before I employed an injection, from the dread of the ill effects which might result from the close proximity of the peritoneum; but this mode of practice is sometimes recommended.

Encysted hydrocele of the spermatic cord I should consider as similar in every respect to encysted hydrocele of the testicle, excepting in situation; that they are always in both cases exterior to the cavity of the tunica vaginalis, and contain a limpid, uncoagulable fluid: whether or not the fluid of the encysted hydrocele of the cord contains spermatozoa, I believe has not been ascertained. The separate sacs which are sometimes found in the tunica vaginalis of the cord are not, in my opinion, to be considered as encysted hydroceles, but as true hydrocele of the cord in the complex form, such as has already been described sometimes to occur in the hydrocele of the testicle.

The means to be adopted for the obliteration of these cysts, if they do not spontaneously disappear, are either acupuncturation or seton, the former of which should always be first attempted before having recourse to the more dangerous mode of the introduction of a silk into the cyst.

Hæmatocele is a collection of blood instead of serum in the tunica vaginalis; and the diagnostic marks between hæmatocele and hydrocele are, that in hæmatocele, the effusion of blood results at once from the lesion of a blood-vessel, and therefore rapidly forms upon the application of the exciting cause; while the fluid of a hydrocele results from an inflammatory action, and only gradually accumulates. In hæmatocele the tumor is always opaque, and much heavier than in hydrocele; consequently greater inconvenience is experienced. If called to a recent case of hæmatocele, you will generally find the scrotum more or less ecchymosed and dis-

tended by a fluctuating tumor, and probably the history of the case will prove that a blow or some other external force has been the cause of these appearances, and is sufficient to constitute the diagnosis of the malady.

Hæmatocele not unfrequently results from the operation of tapping a hydrocele, in consequence of the trocar wounding some abnormally distended vessel, either of the skin or tunica vaginalis. In such a case, a few hours after the serum has been drawn off, the swelling is as large as ever, from the accumulation of blood. The largest hæmatocele I ever saw was produced in this manner.

[The treatment of hæmatocele is to lay open the cavity, and turn out the coagulum.]

Medical Gazette, March 16, 1849, *p.* 443.

107.—*Case of Abscess of the Spermatic Cord.*—By Dr. W. P. Brookes, Surgeon to the Cheltenham General Hospital, &c.—[Dr. Brookes first visited the patient, a man aged 51, of spare habit, on the 28th of June, 1848; and found him suffering from feverishness, constipation, and abdominal tenderness. On the right side above Poupart's ligament was a large and deep depression caused by the pad of a Salmon and Ody's truss, which he had worn for many years for a double inguinal hernia: and this spot was the seat of excruciating pain and tenderness. Active treatment (leeching and calomel with opium) was adopted; and on the 2nd of July the abdominal pain had entirely ceased. There was still, however, the same heat and pain at the spot where the truss had been worn. The further report of the symptoms at this time is the following:]

Intense hiccough appeared this morning, which gives him uneasiness, and makes him irritable and anxious; countenance shows great anxiety; he takes but little sustenance; more fulness on the spot where he complained of pain, and a swelling of a pyriform shape, extending under Poupart's ligament from this part down into the scrotum, appeared to-day; it follows the course of the spermatic vessels from the ring; the cord is situated behind the swelling, and feels hard, tense, and most painful to the touch; the hernia is not to be discovered; the tongue dry, glazed and red, but at night it moistens, and has done so for the last few evenings. Pulse 120, quick and sharp.

3rd.—Hiccough continues much the same, and he rarely gets an interval of five minutes without it; he has also every two or three hours severe fainting paroxysms, in which he can scarcely draw breath, and is compelled to be supported up in bed: when in these attacks he appears as if in a dying state, and they last for two or three minutes at a time: the stethoscope can discover no abnormal signs of disease in any of the viscera or vessels of the chest; the tumor in the groin is hard, red, and painful to the touch; does not fluctuate, nor does pressure exert any influence on it; no intestine can be discovered down; twelve leeches to be applied to it; warm fomentations afterwards. Bowels open twice to-day; is in a most

exhausted state; to take beef-tea, brandy and water, and the following mixture:—Two drachms of spirits of compound sulphuric ether, water six ounces, one tablespoonful every two hours.

[He improved a little up to the 8th, upon which day, Dr. Brookes says:]

Towards the evening I was sent for in great haste, when I found my patient in a dreadful state of collapse, with difficulty of drawing breath: cold perspiration streaming from his forehead and face, and we considered him in a dying state; he could just swallow. By the use of ether, brandy, and ammonia, he gradually rallied. Warm poultices to be kept applied to the swelling in the groin.

10th.—Tumor very painful: will not allow it to be handled much; it extends nearly to the lowest part of the scrotum, and takes quite the shape of scrotal hernia. I can discover no intestine down. Bowels well opened; great sickness came on to-day, and slight fluctuation appeared in the tumor, which is becoming red and inflamed. On moderate pressure it gives a gurgling noise, as if it contained air. Tongue red and moist. Continue quinine and ether. On a consultation with Mr. Eves and my patient's master, it was deemed prudent not to interfere with the tumor to-day, and warm applications were applied.

16th.—Tumor continued increasing in size up to this day: it appears to have no inclination to point on pressure; it gives an increased gurgling-like noise of air, and on filliping it produces a drum-like sound. We can discover no intestine in the scrotum. To-day we thought it advisable to dissect down layer after layer, as if operating for hernia, and after dividing the first two layers a most fœtid offensive matter escaped to the extent of nearly half a pint, raised with bubbles of air. The constitution suffers greatly, and he has become very weak, irritable, and anxious. To take beef-tea, brandy, and as generous food as he can, with occasionally porter and port wine. Instead of brandy, continue the quinine mixture.

18th.—Tongue moist; pulse fuller and more natural; bowels opened; urine healthy and plentiful; sleeps well. A slough coming away from the wound in the scrotum, which discharges about six ounces daily, and smells most offensively.

[After this time he went on well, the discharge gradually diminishing and the constitutional symptoms subsiding, until he was quite restored to health. The original cause of the mischief, Dr. Brookes considers to have been the pressure exercised by the pad of the truss which had slipped out of its position;—the inflammation locally excited, having rapidly spread to the peritoneum. Dr. B. remarks:]

The hiccough through the early part of the case was a very troublesome symptom, and doubtless was first caused when the matter commenced forming, as it altogether ceased on the complete formation of the pus: another obscure point in the treatment was

the peculiar gurgling sensation and drum-like sound given out by the tumor when it was examined, and which gave us the idea that it was in some measure, either dependent on intestine, or that the tumor communicated with the cavity of the abdomen, and therefore it rendered us anxious not to use surgical interference until more distinct marks of its character appeared. On opening the swelling the gurgling noise was fully accounted for by the escape of air with the pus, and I doubt not this air was generated by decomposition of the cellular tissue surrounding the parts and communicating with the sac of the abscess. Another symptom (no stethoscopic examination could discern disease of any of the organs of the chest) was the peculiar paroxysms of syncope; it is quite impossible for any one but an eye witness to imagine the extraordinary nature of the severity of these attacks, and frequently we considered the patient in a dying state from them. I have some difficulty in attributing them to any cause, for I never before saw anything at all approaching the symptoms: I imagine they arose from the extreme irritation and exhaustion the system was undergoing while purulent matter was forming, for on the complete formation of the pus they gave way considerably, and shortly after the exit of it, entirely disappeared. The powers of the constitution in this man were obviously shown, and the benefit to be gained by freely pushing stimulants with care, was extremely well marked, for he frequently rallied wonderfully when all hopes of life had nearly ceased.

The stage of sphacelus which for a few hours appeared, I must attribute to the application of a cold poultice to the parts by mistake, and the extreme want of constitutional power in the system rendered cold a dangerous remedy in this state. Upon the application of warmth it speedily gave way, and the scrotum again took on an healthy action. The hernia on the side of the injury descends far less than on the left, and for the first few weeks it could be barely said to come down at all; in fact its descent now only takes place on violent straining or exertion: this I consider was from the abdominal ring being obliterated in a great degree by the inflammatory action taking place upon and around it. I have found much difficulty (since recovery) in adapting a truss to the right side, from the pain it gave him when he first commenced wearing it, but having now had it constructed with a soft slightly concave pad in the centre, and elongated nearly half an inch more than usual, he manages to wear it without uneasiness. There is at present some pain on pressure over the abdominal ring, and the cup-like depression from the former pad of the truss still exists. The right testicle and spermatic cord are quite healthy and of their natural size.

The similarity of this disease in many respects to hernia is very strong, and may easily have (at the onset) been mistaken by a careless observer for a case of strangulated scrotal hernia.

1st. It gradually descended from the abdomen in the course of the cord, which was also situated behind it.

2ndly. It protruded much while the patient was in the erect posture.

3dly. It gave some impulse on coughing.

4thly. The gurgling noise and drum-like sound of the tumor appeared as if it contained flatus.

5thly. The costiveness and sickness which frequently appeared, had not the intestine readily returned, would, I doubt not, have led to the belief that the whole of the symptoms arose from hernia.

Medical Gazette, Feb. 2, 1849, *p.* 192.

108.—*On Abscesses in the Perineum.*—By Bransby Cooper, Esq., F.R.S., &c.—*Abscesses in the perineum* sometimes result from stricture, even when the obstruction is not sufficient to produce actual retention of urine. These abscesses occur from the dilatation of the urethra behind the stricture, leading to ulceration of its structures, and consequent infiltration of urine; in such cases swelling in the perineum soon results, and rigors supervene, indicating the formation of pus: a free opening into the perineum should be immediately made, and the catheter passed, if practicable, along the natural passage of the urethra into the bladder; should you not be able to effect this at the time, repeated gentle efforts must be made to restore the normal continuity of the canal. Such ulceration of the urethra may, however, occur, as I have already said, without being produced by an impermeable stricture, so that it frequently happens in such cases, that the catheter passes readily into the bladder without meeting any insuperable obstruction; but this should never be attempted until the abscess be opened, as the accumulated matter itself might cause considerable impediment to the passage of the instrument. The following case affords an example of this fact:—I was sent for to see a patient who was suffering from retention of urine, of which the symptoms were so urgent that I immediately attempted to pass a catheter; not succeeding, however, in relieving the patient, I proceeded to examine the perineum, where I discovered a tumour of considerable size; in this I made an incision, and a quantity of pus and urine were immediately evacuated. As the patient stated that he had been the subject of stricture for many years, I considered it better to open at once the membranous part of the urethra; I therefore passed a female catheter into the bladder, and, drawing off the urine, relieved the patient from the symptoms arising from the retention; I next passed a male catheter along the natural passage of the urethra, as a preliminary to the division of the stricture; to my great surprise the instrument passed readily on, and when the female catheter was withdrawn, at once entered the bladder; this circumstance showed that if I had attempted to pass the male catheter before I divided the membranous portion of the urethra, I should have found the more formidable part of the operation to be altogether unnecessary. The experience I derived from this case has since often prevented me from cutting into the membranous part of the urethra, after opening an abscess in perineo, without first attempt-

ing to pass the male catheter along the natural course of the urethra; such a precaution is, indeed, rendered doubly necessary by the fact that abscesses in the perineum may result from external injury, without any other implication of the urethra on the canal than that arising from the mere pressure of accumulated matter, the evacuation of which immediately relieves the symptoms.

Medical Gazette, Dec. 8, 1848, *p.* 955.

Retention of urine, whether arising from permanent stricture, the presence of calculus, or, indeed, from any cause which prevents the flow of urine, may be spontaneously relieved by ulceration of the urethra behind the cause of obstruction, from which extravasation of urine, and subsequently abscesses, must necessarily result, and fistulous openings being established, the patient is relieved by the flow of urine through them. Such a condition must not, however, be allowed to remain; and it is quite clear that the fistula cannot be cured without the stricture being divided so as to restore the natural canal for the passage of the urine. Puncture of the bladder in such cases would, in my opinion, be quite ineffective in relieving the patient, and the cure can only be produced by dividing the stricture, in perineo, as I have already described, and by freely laying open all the sinuses, however numerous they may be.

Ibid, p. 955.

109.—*On Retention of Urine caused by Valvular Obstruction.*—By M. Mercier.—In the Gazette des Hôpitaux for the 23rd and 27th January, there appeared two papers on the remedial measures for retention of urine in old people. M. Mercier states that his researches have shewn him that the cause of retention in these cases, is what he terms valvular obstruction, which he divides into two kinds, muscular and prostatic; the former, he states, arises from the anatomical arrangement of the muscular fibres at the orifice of the bladder, presenting, even in their normal condition, a transverse elevation of the mucous membrane covering them; this, he states, increases to such an extent in old people, as to present a true valvular obstruction; and to remedy this cause of retention, he proposes incising the valvular elevation at several points by means of an instrument of the form of the ordinary short curved sound used for exploring the bladder, and containing a small cutting blade which can be projected for the purpose of incising the valve, after the instrument used as an exploratory sound has ascertained its size and position. He states, that at first he tried excision of the projecting portion, but found this means uncertain, and that he now finds deep incisions across the structure of the valve perfectly sufficient. If no accidents occur during the first few days, he applies no other treatment (nothing is said of what these accidents may be) except for the purpose of preventing hemorrhage, which has occasionally though rarely occurred; he recommends that the bladder should not be allowed to be empty, and therefore directs

the use of injections of cold water; he finds the presence of the urine sufficient to prevent too rapid union of the incised edges.

By the term prostatic valvular obstruction is meant, the enlargement and projection of the middle lobe of the prostate. For the cure of this cause of retention, it is proposed to twist off or break down the projecting portion. This is effected by means of the lithotrite of M. Jacobson, which consists of two branches enclosed in a sheath; the branch corresponding to the convexity of the curve is formed of separate portions articulated together, so that when the blades are projected from the sheath, the articulated branch forms a sort of noose; when the instrument is closed it presents the appearance and serves the purposes of an ordinary sound. For the operation at present in question, the instrument introduced closed, is used as a sound, and when the valvular projection of the prostate is felt by it, the instrument is opened, the blades are projected from the sheath, and the enlargement of the gland is seized in the noose, and then by drawing back the blades within the sheath, the instrument is closed, and the valvular tumour either twisted off or broken up into fragments which become decomposed in the bladder and pass off with the urine. The only after treatment adopted is the injection of cold water into the bladder to prevent hemorrhage.

It is also mentioned that M. Mequel d'Amboise has obtained favourable results in such cases by the employment of a method at once ingenious and *very simple* (save the mark!). This simple measure consists in taking six small leaden pellets of a conical form, the base of each being about two-fifths of an inch in diameter, and to the apex of each is attached a long and delicate stalk of very flexible iron wire; these are introduced one by one into the bladder by means of a silver catheter open at both ends; and this being effected, the catheter is withdrawn. The operator then unites all the flexible iron wires which project at the orifice of the urethra, and by drawing them towards himself, he pulls all the leaden cones into a mass at the neck of the bladder; this he does with the intention of causing compression of the enlarged lobe of the prostate, but, according to Mr. Phillips, it would seem probable that the glandular projection is entangled amongst, and crushed and torn by, the forcible collection of the leaden cones. When the operation is completed, the cones are pushed back into the bladder, and then removed one by one by means of the attached wires.

Monthly Retrospect, April, 1849, *p.* 85.

110.—*On Senile Enlargement of the Prostate.*—The enlargement seems to be true hypertrophy, as it is rarely attended by any alteration of texture, although I have in some few cases found the gland softer, and in others harder, than natural. The symptoms in enlargement of the prostate gland depend with respect to their urgency upon the size it has acquired; they are, sense of weight in the perineum, intolerance of pressure from the hardness of a seat; difficulty in passing the urine, and also in voiding the fæces, which

will be found flattened by the encroachment of the hypertrophied gland on the rectum. At this stage of the complaint, retention of urine occasionally supervenes, rendering the introduction of a catheter necessary. This operation should be performed with the utmost gentleness, as the slightest flow of blood would cause decomposition of the urine, and consequent aggravation of all the symptoms. An elastic gum catheter should always be used for drawing off the water, and, if possible, it should be introduced without a stilette; leeches should be applied to the perineum; the rectum emptied by means of enemata; and suppositories, recumbent position, and soothing remedies employed. I have also found colchicum of great use in such cases, and believe that its beneficial influence arises from the circumstance that this disease frequently attacks subjects of a gouty diathesis. I usually prescribe the colchicum in the following form:—

℞ Ext. colchici acet. gr. j.; pil. hydrarg. gr. j.; pulv. Doveri gr. v.; ext. colocynth. co. gr. iij. M. ft. pil. bis quotidie sumenda.

As the complaint takes its origin from a particular epoch of life, nothing more than relief of the symptoms can be expected; but nevertheless, by a judicious system of diet, by keeping the patient from excess of bodily exertion, and from vicissitudes of temperature, his life, which was scarcely supportable under the violent symptoms of the disease, is rendered comparatively free from pain and inconvenience.

It does not always happen that the whole of the prostate gland becomes hypertrophied in old age; but very frequently the third lobe only is affected, or perhaps it may more properly be said that a new development arises; for in a state of health, at the adult period, the third lobe is scarcely perceptible. When this third lobe enlarges, it presses the inferior region of the bladder or "trigone" upwards above the commencement of the urethra in the bladder, preventing the evacuation of the urine, and consequently producing retention. Nor is this the only inconvenience; for by the raising of the bladder immediately behind the prostate, a kind of reservoir is established below the entrance to the urethra; and, in the effort to empty the bladder, a portion of its contents is always left; this becomes specifically heavier than the newly-secreted urine, which does not intermix with it: and, after a time, the retained urine undergoes decomposition, which gives rise to very urgent symptoms—such as frequent desire to make water, tenesmus, deep-seated pain in the perineum, and liability to positive retention. It is quite clear that these symptoms cannot be removed while the exciting cause remains; the fœtid urine must therefore be immediately drawn off by means of the catheter. In such cases there is, however, a difficulty in passing the instrument, as the enlarged lobe offers some degree of obstruction to its passage, and this is only to be overcome by employing a longer and larger catheter than that usually made use of; this instrument is generally termed the prostatic catheter. The mode of introducing the catheter in such cases is similar to that in ordinary practice, until it arrives at the point of obstruction, when

the penis and instrument are both to be drawn forwards for the purpose of straightening the urethra; the handle of the catheter is then to be considerably depressed, so as to tilt up the point, and it is then pressed onwards into the bladder. But, having effected this, the urine would only be drawn off to the level of the urethra, and the heavier fluid would still remain, unless further means were employed for its removal. The cleansing of the bladder may be effected by injecting it with tepid water, by means of a syringe; and an improved instrument has been invented for this purpose, by which a continuous current is kept, the same stroke of the piston removing one quantity, and supplying a fresh one. Constitutional remedies must not be neglected; and when an alkaline state of the urine exists, medicines of an acid character are generally indicated. Among the most efficacious of these will be found the following:—

℞. Nitro-hydrochlor. acid. gtt. iij.; syr. papav. ʒiij; inf. colomb. ℥iss. M. Ft. haustus ter quotidie sumendus.

In addition to this an opiate suppository at bed time will often be found of great advantage; but if an acid condition of the urine be not thus restored, liq. potassæ will frequently be found capable of re-establishing the normal acid state: this anomaly has been accounted for by Dr. G. O. Rees, on the supposition that the alkali renders the secreted urine less irritating to the mucous membrane of the bladder, and preventing the secretion of alkaline mucus, for which the urine had acquired its abundant preponderance of alkali.

I must again direct your attention to the propriety of employing the prostatic catheter in cases of enlarged prostate; for I have frequently known great mischief arise from a perseverance in the attempt to relieve a patient by the ordinary instrument.

Medical Gazette, Dec. 8, 1848, *p.* 957.

111.—*New Instrument for Dividing Strictures.*—M. Civiale has invented a new instrument for the division of indurated strictures of the urethra. The principle of the improvement consists in the division of the stricture *from behind forwards*, instead of cutting in the reverse direction, as hitherto practised by surgeons. The new instrument, according to M. Civiale, has the advantage over the old method in the fact, that the extent of the incision can be precisely ascertained, and controlled by the operator, and a division of all the tissues can be performed with safety.

Dublin Medical Press, April 11, 1849, *p.* 234.

SYPHILITIC DISEASES.

112.—ON THE IMPORTANCE OF DISCRIMINATING DISEASES OF THE URETHRA.

By Thomas Bartlett, Esq.

Two mistakes are often made in the treatment of diseases of the urethra. One consists in regarding as a poisonous discharge produced by gonorrhœa, that which is innocuous, and caused by

irritation merely in the passage—such, for instance, as the presence of a stricture; the former being a virulent poison capable of reproduction *ad infinitum*, while the latter is perfectly harmless.

Want of due discrimination in this case not unfrequently inflicts irreparable injury on the patient. For example: when a stricture, attended with a discharge from the passage, is observed soon after an attack of gonorrhœa, the patient naturally considers that he is suffering from the gonorrhœa, which had not been properly cured; and should the person who has the treatment of the case entertain the same opinion, the result will be that the patient will continue taking copaiba, cubebs, &c., off and on for months, perhaps years, to the great injury of his stomach and system in general, while the stricture all the time is gradually getting worse. There is a curious point in reference to the effect of copaiba on this kind of discharge, and it is this—the discharge is always relieved, but never removed by copaiba, unless in conjunction with the use of bougies. This fact again tends materially to perpetuate the erroneous treatment, as the inference at once suggests itself, that copaiba, &c., will cure this discharge if persevered in, inasmuch as it always exerts a marked influence on it. But however good the argument, the practice is bad, for it will never cure such a discharge. The practitioner very commonly remains in ignorance of his error, by reason of the patient becoming dissatisfied with his treatment, on feeling no permanent benefit from it, and therefore soliciting the assistance of various others for the relief of what he and they regard as an incurable clap.

Such a mistake must be attended with serious results in every case in which it is made, but in some they are very distressing. When, for instance, a man's marriage is postponed from time to time on account of his suffering, as he thinks, from incurable gonorrhœa, his feelings are terribly worried, and if he happen to be of an excitable, nervous temperament, it renders his life miserable in the extreme. Again, a worse case than this arises when a discharge caused by a stricture first appears after a man is married, and possibly years after he had contracted the gonorrhœa, which was the origin of it. A suspicion of the faithlessness of his wife will necessarily force itself on his mind, as he knows he has had intercourse only with her; while she, on her part, conscious of her own innocence, is convinced of his inconstancy, and considers his accusation of her as a mere subterfuge to screen himself. If, under these circumstances, a medical opinion is given in haste that the husband is afflicted with gonorrhœa, one family, at least, is rendered unhappy for life.

The case of a gentleman from Norfolk who came to me for the treatment of a very bad stricture, is instructive in showing the injury which may be inflicted on a patient by this error in judgment. When he put himself under my care he was in a sad state; he could only pass his urine by drops, or occasionally in a very fine stream; he had a constant copious discharge from the urethra, which was the source of great mental annoyance, as well as

physical discomfort to him, and he was altogether in a most pitiable condition. On my inquiring whether he had not felt some premonitory symptoms of the gradual approach of the stricture, he said he certainly had, but had not referred them to the true cause, his medical attendant having assured him that they were occasioned by gonorrhœa, which, said he, "worried me exceedingly; for I have been married many years, and this discharge has come on subsequently, without my having had intercourse with any other than my wife, who has always assured me that she was never troubled with anything of the kind. However, as my medical attendant confidently affirmed that it was gonorrhœa from which I was so often suffering, I could conclude it to be no other than that disease, and it was the constant cause of a great deal of unpleasant feeling between myself and wife, until I became convinced, by the difficulty in passing my water, that it was produced by a stricture."

Occasionally the discharge caused by the irritation of a stricture is attended with many of the symptoms of a regular gonorrhœa; but when it is generally known that it is so, there will be experienced but little difficulty in practice, in distinguishing these discharges, which differ so materially in their effects on the system. An important benefit, however, might be rendered to the profession, as well as to sufferers in diseases of this kind, by the attention of medical men being directed to a close observation of the distinctive character of the matter generated in these two diseases, which are now so commonly confounded.

The other mistake refers also to the presence of a stricture. It is the received opinion, being so laid down in all works on surgery, that the stream of urine through the urethra bears an exact ratio to its calibre. It would be so, were the urethra a dead body; but being endowed with vitality which is acted on by muscles,—whether in its substance or not is immaterial,—the result is, that a person afflicted with a permanent stricture may pass his urine in a good stream, because, when he feels a desire to evacuate, his urethra, obedient to his will, opens out, so to speak, at its strictured part, and discharges a larger-sized stream than would have passed through it, had it been an inanimate body. The stream of water would be small in proportion to the constriction in any part of a leaden tube, for instance; but the urethra, being endowed with an exquisite sensibility, and if not muscular itself, surrounded by muscles which act on it, can bear no analogy to a tube that is incapable of any sort of self-motion or propelling power

In practice this consideration is of high importance, and I am anxious to impress this on the profession; for if a person afflicted with a permanent stricture passes his water in a fair stream, a surgeon, in this particular misled by his teachers, will pronounce the case not to be a stricture, to the great injury of his patient. Indeed, no error that can be made in surgery is attended with more serious results than this, because the case, from being misunderstood, gradually gets worse, in spite of all treatment, bougies not being introduced,

until some exciting cause having supervened, irritation comes on in the passage; no urine whatever can be passed; and the patient's life will be in extreme danger, should he not then be efficiently treated.

Lancet, March 24, 1849, *p.* 313.

113.—*On the Treatment of Gonorrhœa by Vinum Colchici.*—Dr. Ficinus, of Dresden, confirms the opinion formed by Eisenmann, of the value of vinum colchici in gonorrhœa. He gives from twenty-five to thirty drops three times a day, combined with tinct. opii, enjoining at the same time a low diet, warm bath, &c. These means he has found attended with unprecedented success in the treatment of gonorrhœa and other inflammatory discharges from the urethra in males, and from the vagina and uterus in females. The details of ten cases are given in illustration,—*Casper's Wochenschrift*, Aug. 26, 1848.

Medical Gazette, March 16, 1849, *p.* 482.

114.—*Treatment of Venereal Warts.*—The most convenient and complete, and least painful mode of removing these, was found to be by strong nitric acid, applied only to the excrescence. It destroys it so entirely as to cause its separation in a short time, without injuring, if carefully applied, the surrounding parts.—*American Journ. of Med. Sciences*, Jan. 1849.

Medical Gazette, March 23, 1849, *p.* 507.

115.—*Use of Sulphate of Iron in Chancre and Gonorrhœa.*—[An anonymous correspondent of the Lancet says:]

The whole class of caustic agents, when applied to the Hunterian chancre, (though the *potassa fusa cum calce* be used, till the ulcer be "punched out" as recommended by M. Ricord,) form an eschar with pus still secreting; in fact, the morbid cells have not been destroyed. The alkaloids and hydro-carbons are equally inefficacious.

If a chancre be perfectly freed from its eschar and the enclosed pus, at the bottom of the excavation may be observed minute white points or germs, secreting, slowly, the morbid virus. If, now, the proto-sulphate of iron, minutely pulverized, be dropped into this excavation, the parts will instantly assume a charred appearance, the metal is absorbed into the tissue, the morbid cells or germs will instantly cease to secrete pus, the cleared cavity will shortly granulate, and a smooth surface, without induration, will be the result of the use of the proto-sulphate of iron. The chancre is destroyed.

It is known to chemists, that the proto-sulphate of iron absorbs large volumes of oxygen and nitrous oxide gases.

The proto-sulphate of iron, I have observed to be the most powerful agent for arresting decomposition in animal and vegetable substances. Inflammation and decomposition in the living tissue is likewise arrested by it.

In gonorrhœa, we have now an agent arresting the morbid cellular action in the salts which should be used in solution supersaturated.

In leucorrhœa, and in simple ulcers, the morbid action is arrested or peroxidized by this metallic salt.

Large doses of this salt have been exhibited in obstinate diarrhœa, with great benefit.

The action of this salt will produce a great change in superseding mercury in the treatment of diseases of specific origin.

Lancet, Dec. 9, 1848, *p.* 647.

116.—*Treatment of Urethral Pains following Gonorrhœa.*—By M. Vidal.—M. Vidal, after stating the frequent occurrence of severe persistent pain in the course of the urethra, after all traces of discharge have completely ceased, mentions that, having frequently remarked that the pains were relieved by pressing the penis with the fingers, he was led to the idea of treating these cases by compression, and has found the plan useful, affording a perfect cure in many cases, and a marked alleviation in others. The operative procedure, says M. Vidal, is so simple, that it is scarcely necessary to mention it. "The surgeon takes a long strip of diachylon plaster, one centimetre (two-fifths of an inch) in breadth, and rolls it around the penis in the same manner as a common bandage, beginning at the glans; or still better, he may apply it more accurately by using a number of small strips of plaster, each of which shall only be sufficient to encircle the organ once, and the two extremities of each strip should be made to cross upon the urethra, for the purpose of ensuring the firmness of the dressing. The principal point to be attended to is the degree of compression, which ought to be as firm as possible, without interfering with micturition, which would of course necessitate the removal of the dressings. The compression should be continued for a considerable period after the cessation of the pains, to prevent their return."

Dublin Medical Press, Feb. 21, 1849, *p.* 120.

117.—OBSERVATIONS ON STRICTURE OF THE URETHRA.

By Professor Syme.

[There is a form of stricture, marked by "the tightness of the contraction, the resilient disposition displayed after dilatation, and the great degree of irritation induced by attempts to effect this," in which Mr. Syme has advised the free division of the contracted part upon a director. The following is a case of the kind alluded to:]

David I., aged thirty, a confectioner, was admitted on the 17th of December, suffering from the symptoms of stricture of the urethra in a very aggravated form. He had had retention of urine for twenty-four hours, and stated that he was liable to such attacks,

in the intervals of which, to use his own words, "he could neither make nor keep his water," being unable to void it voluntarily in a stream or prevent it from constantly exuding by drops, with the effect of wetting and rotting his clothes, irritating the skin, and causing ulceration of the prepuce and thighs. His condition was indeed wretched in the extreme, and had existed, with progressive aggravation, for five years. The stricture would not permit the smallest catheter to pass, but was so far relaxed by the attempts made to effect this, followed by warm bath, as to permit the urine to escape by drops.

On examination, Mr. Syme found that there were two contractions of the canal, one being at the neck of the glans, and the other about four inches and a half from the orifice. It was the latter which, from its extreme tightness and excessive irritability, appeared to be the chief seat of the patient's complaint. The smallest bougie, and even a probe, could not be passed through it, but after several trials a very slender knitting-needle was introduced, and followed by others of somewhat larger size. No relief was thus obtained, and after several weeks had been spent in the hospital without the slightest benefit, it seemed necessary to adopt a more efficient course.

On the 20th of January, a small grooved director, which had been constructed of the same size as the largest knitting-needle permitted to pass, was introduced, and the patient being placed in the position for lithotomy, an incision was made in the middle line of the perinæum, so as to let the conductor be felt, and allow the knife to be inserted into its groove. The stricture was then divided, and a moderate-sized catheter secured in the urethra to prevent any risk of extravasation.

The patient seemed to experience relief from the instant the stricture was divided, and suffered no inconvenience from the catheter, which was withdrawn at the end of forty-eight hours. He made all his water through the wound for three or four days, and then gradually found it to resume the natural passage. On the twelfth day after the operation he had ceased to discharge any urine by the wound. He could retain it for five hours at a time, and passed it in a full stream, and he bore the introduction of an ordinary-sized catheter without uneasiness. On the 2nd of February he was dismissed, in all respects perfectly well.

It seems deserving of consideration how far this mode of treatment might be adopted with advantage in the ordinary form of stricture, especially in hospital practice. Patients seldom consent to remain until the dilatation is fully effected, and after being discharged, hardly ever use the necessary precautions for preventing relapse. They are therefore frequent applicants for re-admission, and in the intervals are exposed to many dangers, such as those of complete retention and perinæal abscess, from which, if they escape with life, they may be deemed fortunate, while the institutions which afford them relief, are burdened with their maintenance during a protracted period. Six weeks may be mentioned as the

shortest duration of the treatment by bougies, requisite for fully dilating a tight stricture, and a fortnight as the longest required for the remedy by incision. But the former method is uncertain, attended with more or less risk, according to the skill and care of the surgeon, and inadequate to afford protection against relapse, while the latter is perfectly certain, safe, and permanent in its effect.

The treatment here recommended must not be confounded with either of two other methods, both of which should be banished from the practice of surgery. These are, division of the stricture by internal incision, and establishing a channel for the urine, by cutting upon the point of a catheter at the seat of obstruction. With regard to the former, Mr. Syme stated, that independently of other obvious objections, he had found upon trial, that it did not afford permanent relief, and mentioned that one of the worst cases of stricture which he had seen in London was that of a gentleman who had been allowed to go to India, with the assurance that the treatment by internal incision had effectually protected him from any return of the contraction, but had not completed half the distance to his destination before the complaint was more troublesome than ever. The second mode of treatment seems still more objectionable, since it was not only apt to fail in affording the relief desired, but also impeded the efficiency of subsequent attempts founded upon a better principle. This operation, although it had been honoured by being connected with the names of Hunter and Cooper, was generally the resort of inexperience or awkwardness in the use of instruments, since "impermeable" strictures existed more in imagination than reality; and it might be safely affirmed that there was no case of stricture through which, by patience and perseverance, a catheter or bougie might not be conveyed into the bladder. The great defect of the operation was, that it did not re-establish the canal fairly and continuously, but was almost sure to leave a hitch or projection at one side of the passage, which rendered its course angular, and led to mischievous consequences of a serious kind, especially the re-formation of stricture. When this happened, the subsequent treatment became peculiarly embarrassing, and even complete division of the contracted portion of the canal upon a grooved conductor, was not always sufficient to afford permanent relief. The risk of all such difficulties and dangers might be anticipated by adopting the method recommended, and cutting the stricture upon a director, when the canal, however much contracted, still preserved its proper course and direction.

Lancet, Feb. 17, 1849, *p.* 180.

118.—*On Stricture of the Urethra.*—By Bransby Cooper, Esq., F.R.S., &c.—[Mr. Cooper would substitute the name of "*irritable*" for that of "*spasmodic*," as applied to stricture, since the latter term involves the idea of the disease being caused by muscular action; while this is not really the case, except in the membranous and bulbous portions of the urethra. Mr. C. observes:]

Any circumstance that produces irritation, and consequent extraordinary influx of blood to the urethra, will have a corresponding tendency to diminish for the time the size of that canal. This is the case during the natural excitement of the organ; as when it is in a state of priapism the urine can scarcely be expelled even in the minutest quantity. A partial determination of blood to the part leads, therefore, to a certain amount of obstruction, and constitutes what I consider spasmodic or irritable stricture. This condition may be readily distinguished from permanent stricture by the suddenness with which the patient is attacked by difficulty in passing the urine, unattended by any other premonitory symptoms than those of the mere cause of irritability—as protracted retention of the urine, hemorrhoids, or excessive venereal excitement. In the treatment of this affection, the catheter should not be employed at first, but a dose of opium with tartarized antimony given, together with the application of hot bath, and a warm purgative enema; and these measures will generally be found sufficient to remove the complaint without any instrument being had recourse to. If the catheter be passed without the sedatives being first employed, even should it effect its intended result, viz. relief from retention of urine, it would tend to increase the cause of the obstruction by irritating the urethra; it would also probably cause considerable bleeding, and perhaps lacerate the interior of the canal itself. I do not, however, mean to say that constitutional remedies alone will always cause the removal of the disease; for the congestion of the vessels of the irritated part, or perhaps some subcutaneous effusion, may have led to permanent obstruction; and if that were the case, and local irritation present at the same time, the mixed kind of stricture already alluded to would be established. In obstinate cases of this mixed stricture, cupping in the perineum will often be found of great advantage; two grains of calomel and a grain of opium may be taken at bed-time, and also small doses of the sesquichloride of iron, and the bougie may at the same time be employed in a very gentle manner; but if it should produce pain and bleeding, caustic should be applied to the stricture; and this I believe to be an almost infallible means of subduing the irritability in some cases; and the following suppository at bed-time will be found to produce a very beneficial effect:—

℞. Pulv. opii, gr. iss.; ext. hyos., gr. v.; sapon. hispan. q. s. ft. suppositorium.

But ordering the suppository, is not sufficient; you must also see it properly introduced into the rectum, otherwise it will increase, instead of diminish, the suffering of the patient. If, for example, it be only placed within the anus, under the influence of the sphincter muscle, it will produce an aggravation of all the symptoms; while if it be passed into the bowel above the sphincter, it will speedily produce the desired soothing effect.

[Mr. Cooper next speaks of *permanent* stricture, arising from adventitious deposit in the cellular tissue between the mucous mem-

brane and the corpus spongiosum, by which the mucus membrane is pressed inward, and the canal narrowed. In the treatment of this disease, the first step is exploration of the urethra by a bougie. Mr. Cooper prefers that the patient should lie on a sofa during the introduction of the bougie, instead of standing against a wall which is the usual position. He says:]

Having placed your patient in the proper position, you will oil a bougie or silver catheter (No. 6), and, raising the penis to an angle of about 40° from the abdomen, pass the instrument gently down to the stricture, against which you press it slightly, and equably, for the space of a minute, or perhaps rather more, according to the degree of pain the patient experiences. It may happen that the instrument soon passes the obstruction; if that be the case I do not advocate its further introduction, so that it may enter the bladder, but think it better to be satisfied with the progress already made. After the employment of the bougie, the patient should be kept extremely quiet during the remainder of the day, should live abstemiously, and at bed-time take the following draught:—

℞. Liq. potass. gtts. xx.; træ. opii, gtts. x.; mist, camphoræ, ℥iss. Ft. haustus.

An aperient should likewise be taken the next morning. The instrument should be again passed about forty-eight hours after the first examination, and it may now be passed into the bladder, and left there for ten minutes or a quarter of an hour, unless it causes great irritation, for I have always found the cure to be greatly expedited by the continued pressure which the bougie thus keeps up. I have recommended No. 6 as the size of the instrument first employed, as I consider it less likely to produce irritation than the one of smaller size, for the latter is not only likely to catch in the lacunæ, but may also make a false passage by penetrating the sides of the urethra. If however No. 6 be found too large to pass through the stricture, smaller instruments must necessarily be used; but it should be borne in mind that they require a degree of caution in their introduction proportionate to the smallness of their size. If the instrument cannot be passed through the stricture into the bladder, a question naturally arises as to what other means are to be adopted for the relief of the patient. This depends entirely upon the urgency of the symptoms, especially in reference to the distension of the bladder from the retained urine; the judgment cannot here be much guided by the expressions of the patient as to the amount of his suffering, for the pain which in one patient may be described as little more than mere inconvenience, may be complained of by another as excruciating agony. Therefore, the first thing to be done is to examine the state of the bladder per anum, and also through the parietes of the abdomen, If the bladder be felt pressing on the rectum, you may be assured that the distension is extreme, for it is in the posterior direction that the organ projects lastly under the influence of the internal pressure of the urine. I have but very rarely met with a case that did not admit of sufficient

delay to allow of the trial of medicinal means before proceeding to puncture the bladder, although no doubt such cases occur. The plan I adopt is to place the patient in a hot bath, give a large dose of opium (gr. iss. to gr. ij.) and employ a purgative enema. As soon as the bowels are open I order a suppository composed of opium, and a fourth of a grain of belladonna, to be inserted into the rectum: these means rarely fail to produce a flow of urine, which, even if it takes place but slowly, relieves the urgency of the symptoms, and gives time for the adoption of further means for the removal of the obstruction. This may be effected by four different methods—dilatation, caustic, puncture, and incision.

Dilatation should be first tried; it is effected by the catheter or bougie, or by injecting the urethra with water. In speaking, however, of this treatment of stricture, I wish to impress on your minds that something more is to be done beyond the mere mechanical removal of the impediment to the passage of the urine, and that the use of local remedial means should be judiciously combined with constitutional treatment; the latter consisting chiefly in the strictest observance of dietetic rules to the state of the bowels, and in the employment of such medicines as tend to diminish arterial action; such as blue pill with tartarized antimony, followed by slight aperients. Recent strictures may almost always be cured by this system of treatment, assisted by the gentle introduction of the bougie every other day, and even when the stricture has reached its more permanent form, its cure may generally be effected by following out this plan, and in passing the instruments without violence, as the object is not to force a passage through the stricture, but by gentle pressure produce a slight inflammatory action, in consequence of which, disintegration and absorption are likely to be induced. This plan was strongly recommended by Dupuytren, and I have followed it with very great success. The indication that the treatment is producing the desired effect upon the stricture is found in the appearance of a slight purulent discharge, and soon after this effect is first seen, the catheter will generally soon pass the obstruction. During the progress of the treatment the permanent stricture often becomes irritable,—just as irritable stricture is convertible into permanent; this is shewn by its tendency to bleed on attempting to pass a catheter, and by the pain which the slightest touch of the instrument produces; in such cases you will also find that if you succeed in passing the stricture, there will be considerable difficulty in withdrawing it, and it will generally be attended by bleeding. With these symptoms recourse must be had to sedatives, and also to the caustic bougie, which seldom fails to diminish the irritability, probably by destroying the sentient extremities of the nerves which had become exposed by the ulcerative changes the substance of the stricture had undergone. Some surgeons recommend the use of potassa fusa as the escharotic, instead of nitrate of silver. I believe it unsafe, however, on account of its deliquescence, which renders it much less manageable. In cases in which the stricture resists the gentle application of bougies, I have rendered the obstruction

permeable by injecting tepid water into the urethra by means of a syringe furnished with a long canula. By repeating this operation the opening becomes dilated,—a condition soon made evident by the greater freedom with which the water enters; a bougie may afterwards again be had recourse to. It is somewhat remarkable, that after the introduction of the bougie, although no evident mechanical effect has been produced by it, the patient finds that he can pass his water much more freely, and yet perhaps the instrument may not penetrate the stricture until some days after. Caustic is sometimes employed as a direct means of overcoming a stricture, the density of which is so great as to prevent its being acted on by simple pressure. The application of the escharotic produces a slight slough on the surface, and tends to soften the mass of adventitious matter, so as to render it better fitted for absorption. Some precaution is necessary in using the caustic bougie, and contact with any portion of the urethra besides the stricture must be carefully avoided. To secure this a larger instrument should be passed first to clear the way, as it were, for the cauterising bougie. Although I have attached great importance to the observance of extreme gentleness in the introduction of the bougie, circumstances may occur, in which it may be necessary to employ force to effect its entrance into the bladder; for it may happen that the symptoms of retention of urine may be so urgent, that immediate relief is imperatively required, and under such circumstances the forcible introduction of the catheter becomes not only justifiable, but may be an advisable measure.

If, in the attempt to introduce the instrument, it is found that it can be brought to a right angle with the body in its recumbent position, it will prove that the stricture is situated just at the junction of the bulb with the membranous part of the urethra, and then, in order to effect the introduction of the catheter into the bladder, the fore-finger of the left hand should be passed into the rectum; and when the point of the instrument is felt, as it may easily be, the handle must be depressed with moderate force, and the point may then be directed at once into the bladder. Some surgeons recommend that in such strictures the catheter should be thrust in with sufficient force to overcome the obstruction at all risks; but I am persuaded that this is bad practice, as the laceration of the canal, perforation of the prostate gland or rectum, are accidents very likely to occur; it is, therefore, better to puncture the bladder than to have recourse to such violence.

In cases where the catheter cannot be passed through the stricture, instruments have been employed for the purpose of cutting a passage: the instrument is composed of a kind of catheter with a concealed lancet, which is projected from its canula the moment it touches the stricture. But it is so perfectly impossible to direct a sharp cutting instrument merely through the obstruction, without wounding the urethra itself, that I totally repudiate its employment, unless it be for the purpose of dividing a stricture placed anterior to the bulb, and consequently in the straight part of the

canal. If the nature of the stricture does not, however, admit of the use of the instrument, and the attempts at dilatation, by the gentle introduction of the catheter or bougie, injection of water, or application of caustic, have failed, and the patient be still suffering from retention of urine, or be in consequence of the straining threatened with ulceration of the urethra behind the stricture, puncturing the bladder must necessarily be resorted to. The operation may be performed either by making the puncture into the bladder through the rectum, or above the pubes, or by making an incision into the perineum. I have always had an objection to the operation per rectum; for, although it is performed with great facility, still you are interfering with the functions of an important organ, in addition to those implicated in the disease, and, moreover, you are only relieving the patient from the retention, without removing the cause of that evil. Some surgeons maintain that the stricture is much more readily cured when the urine is made to pass off by another channel, as it is then relieved, owing to its being no longer subjected to the pressure of the urine, or the irritating influence of constant attempts at micturition. My experience does not, however, lead me to this opinion, as it still requires much time to remove the obstruction; and during this period a canula or bougie, sufficiently long to protrude from the anus, must be left in the opening between the bladder and rectum; and as this instrument must irritate the rectum by its presence, it would tend to produce a liability to permanent fistula. My colleague, Mr. Cock, has frequently performed the above operation in cases where immediate relief was necessary from the urgency of the symptoms of retention of urine; and the circumstance of his having repeated it, is, in my opinion, a sufficient guarantee for its expediency in certain cases. In the operation, the patient should be placed in the same position as in the operation for lithotomy: the fore-finger of the left hand must be passed up the rectum beyond the prostate gland, and upon the patient's coughing, the inferior region of the bladder may be felt pressing on the rectum. The middle finger should now be introduced, and a long curved canula passed on the fingers and pressed against the bladder, being at the same time held in such a direction that the extremity points towards the umbilicus. The trocar is next passed along the canula, and plunged into the bladder; on withdrawing which, the urine immediately follows.

[The bladder should never be punctured through the rectum without we are quite sure that it is really distended by urine, and that the prostate is not enlarged. The objection against this operation above stated, that it merely relieves the retention without curing the stricture, applies also to *puncture of the bladder above the pubes;* an operation which has also the further disadvantage that after its performance there is great liability to infiltration of urine. In consideration of these circumstances, Mr. Cooper says:]

When, therefore, a patient applies to you, who is the subject of difficulty in passing water, and of frequent attacks of partial reten-

tion, and you find it impossible to pass an instrument into the bladder, and that the symptoms are not relieved by warm-bath, opium, and such other remedies as have already been mentioned, and also that the stricture does not yield to the means employed for its dilatation, nor to the action of caustic, I believe the most advisable operation to be cutting through the stricture in perineo, as by this mode of procedure you not only radically overcome the obstruction, but at the same time relieve the retention of urine. It is true that this operation is more difficult than the others, but that in itself offers no reasonable objection to its adoption, if it actually affords more benefit to the patient. The cause of its frequent failure arises from the delay, which is allowed to produce great constitutional disturbance before the operation is had recourse to as a rational means of cure.

The operation of *dividing the stricture in perineo* is performed with the patient in the same position as in lithotomy: an instrument is passed down to the stricture, the grooved staff being perhaps the most appropriate to the purpose. An incision is next made in the perineum, commencing at the point where the end of the instrument can be felt resting on the stricture; the groove is then to be cut into, and the knife carried downwards with great caution, cutting the way for the point of the staff, which should be made to follow it as it gradually divides the stricture, and the staff, being pushed on, passes into the bladder. The staff should then be withdrawn, and an elastic gum catheter put in its place, and retained there for several days. I have generally adopted another plan for performing this operation, in consequence in most of the cases of fistulous opening in the perineum being concomitant with the stricture. Having made the incision into the perineum, instead of opening the urethra at the groove of the staff as before described, I have first opened the membranous parts of the urethra behind the stricture, and then passed a female catheter into the bladder, and drawn off the urine; thus relieving the patient of the retention, but having still to divide the stricture: this is effected by feeling within the wound for the point of the grooved staff above the stricture; and, proceeding to cut through the obstruction, carrying forward the staff as before described, (first, however, having withdrawn the female catheter,) the staff enters the bladder through the opening originally made for that instrument. The staff should then be withdrawn, and an elastic gum catheter inserted in its stead: this should be left in for a week, when it must be removed, and substituted by a new one. At first, some urine will escape by the wound through the perineum, as in the operation for lithotomy; but generally in the course of a week or ten days it passes entirely through the catheter. About a fortnight after it has entirely ceased to flow from the perineum, the catheter should be removed, but still for some time the patient should regularly have the water drawn off, and this, if performed with gentleness, produces much less irritation than would be excited by the constant presence of an instrument in the bladder. I have, at the present time, a gentle-

man under my care, and ten days have elapsed since the above operation was performed, and the urine has ceased to flow from the perineum; but he continues to employ the catheter to evacuate the bladder. I have performed this operation many times, both in public and private practice, and am convinced that if resorted to in an early stage of the disease, or at least immediately after the appearance of urgent symptoms, there are few cases in which it would not prove successful; but, on the other hand, in protracted cases, success is very doubtful. When a permanent stricture occurs in the urethra anterior to the bulb, and especially in that part of the canal covered by scrotum, it is not advisable to cut down upon the stricture from without, owing to the liability to infiltration of urine if the incision be made through the scrotum, and of the difficulty of healing the wound when the opening is made anterior to it. The cure of such strictures must, therefore, be assiduously attempted by the use of bougies or caustic, or, should they resist this treatment, perhaps the instrument, furnished with a cutting stilette, employed by Mr. Stafford, may be used: as this part of the urethra may be rendered straight, the instrument may be directed with much more certainty than when the stricture is seated in the curved portion of the canal. I should myself, however, prefer opening the urethra behind the stricture, if retention demanded it, rather than to puncture the stricture itself.

Medical Gazette, Nov. 24, 1848, *p.* 867.

119.—*On the Treatment of Stricture.*—By Samuel Solly, Esq., F.R.S., Senior Assistant-Surgeon to St. Thomas's Hospital, &c.—[Relating a case as an illustration of the mode of treatment. Mr. Solly says:]

I took a moderate-sized sound, and, passing it gently down the urethra, found that there was some spasm, but not a great deal. Waiting a little, I moved it onward again, till I found it absolutely stopped. After removing it, I took a small catgut bougie, and, passing it gently down, soon found it quitting the natural channel and entering a false passage. Having now ascertained the direction in which this passage ran, I then withdrew the bougie, gave the point a slight bend, and, passing it in again, feeling round the urethra for the pervious spot, but avoiding the false passage, I managed to hit it off; so the instrument slipped into the bladder without using the least pressure or force.

This is the great secret in the use of the thread-sized catgut bougie: it must be handled most delicately, turned in the urethra, something like a cork-screw, till the hole through which the urine escapes from the bladder is pitched upon, and this is immediately felt by the instrument passing forwards without any sensation of obstruction. The catgut bougie must never be used with the idea of breaking down a stricture or pushing through it, but, if I may so express it, coaxing it into the bladder. Whenever you find the bougie spring back, you must stop and give it a little twirl between your forefinger and thumb: you may often have to work for half

an hour or more in this way, without being able to hit off the opening; but patience and delicate handling will do a great deal. I assure you it is worth taking some trouble to relieve a fellow-creature effectually of such a serious malady without the use of the knife. Having passed the stricture, and entered the bladder, I desired that the bougie should be retained there for an hour. I attach great importance to the retention of the bougie; and with the catgut bougie there is this additional advantage, that the bougie swells to twice its original size.

Medical Gazette, Dec. 29, 1848, *p.* 1089.

120.—ON CREEPING BUBO.

By Samuel Solly, Esq., F.R.S., &c.

[Mr. Solly observes that there is a form of venereal affection which has not received an exact name from systematic writers, and which he designates "creeping bubo." It is that intractable sore which arises when chronic syphilitic bubo proceeds to ulceration, unstayed by mercury. Mr. Solly says:]

Ulceration in the groin, following syphilitic inflammation of an absorbent gland, is often a most intractable kind of sore. I believe that it scarcely ever heals, without the employment of mercury. If its true character be recognised, when the surface which it occupies is small, and but a short time has elapsed from the first absorption of the poison, it is easily arrested by mercury. But if it has attained any size, and the system has been for some months under the influence of the poison, then it is one of the most difficult sores to heal in the whole range of surgery. It is then a long while before this mineral will arrest its ravages; and it is often necessary to desist from the use of mercury for some time, employing tonics, and returning to it again.

If my views regarding this treatment be correct, it is unnecessary to dwell on the importance of distinguishing its character at the onset. This disease, in its most aggravated form, when it has existed some time, unstayed by mercury, presents a very peculiar appearance, by which it is easily distinguished. Its most striking feature is the manner in which it burrows under the skin, creeping onwards from place to place. This creeping character has induced me, for some time past, to designate it in my clinical observations, as *Creeping Bubo.* It often creeps upwards on the abdominal parietes, as high as the umbilicus; down the thigh, as low as the knee; round the thigh, to the anus; and over the buttock, nearly to the spinous process of the ilium.

The formidable nature of this ulcer is best seen in those cases where no mercury has been administered; for, in these, there is scarcely any attempt at the healing process. Some years ago, I had an opportunity of witnessing several cases of this kind occurring about the same time. Their extreme obstinacy astonished me. I

saw every local application in the Pharmacopœia tried, but in vain. Mercury was not made use of, and they continued to extend. One case sank under the disease, apparently exhausted by its depressing effects.

The appearance which creeping bubo exhibits in its *early* stage, presents some peculiarities by which it may be distinguished. The surface of creeping bubo is of a yellowish colour, the discharge is thin and ichorous, the edges are inverted, overlapping, corrugated, in dotted points, white, hard, and very irregular. In its early stage it is most like the strumous or scrofulous bubo, with its overlapping edges; but it differs, inasmuch as the edges of the strumous bubo are inverted, not everted, and soft, not hard and corrugated. The distinguishing marks, however, are not so easily described by the pen as by the pencil.

I was at first much surprised, in searching the records of surgery, to find so few clear and distinct notices of this formidable effect of the syphilitic poison. This most probably arises from the fact, that mercury was so extensively, and, as I believe, judiciously used in former days, that the poison seldom remained so long uncontrolled, as to produce the form of ulceration in question.

Swediaur dwells, with his characteristic force, on those phagedænic and also scrofulous buboes, in which mercury is contra-indicated; but he does not describe any form of bubo which especially requires this medicine.

Mr. Pearson, in his Lectures on Syphilis, used to speak of this form of bubo in the following manner:—"Instead of bubo healing after the completion of a mercurial course, it sometimes happens, that a very painful ulcer remains, which occasionally spreads to the external part of the thigh, and in a contrary direction as far as the scrotum, or even to the anus. The ulcer is ill-conditioned, and attended with bad health, often resisting every mode of treatment that can be tried."

Mr. P. has encouraged the suppuration of the part; but, though it has poured out a greater quantity of matter, it has shewn no disposition to heal. He has used the actual cautery, has applied cicuta, oxymuriate of mercury, bark, sarsaparilla, and myrrh, without any perceptible advantage; in many cases he has given internally cicuta, sarsaparilla, opium, bark, decoctum Lusitanicum, muriate of baryta, chalybeates, compound lime water, blue and white vitriol, without essential benefit to the patient. He has recommended the patient to take chiefly raisins, and decoction of guaiacum; has varied the diet in every possible way; has tried the effect of pure air, exercise, rest, and confinement, but no particular advantage has ensued. Great attention, he says, must however be paid to the general health; the sore should not be stimulated, but kept easy without being relaxed. That mode of treatment is the most efficacious, which gives the least pain. The warm sea-bath, good air and exercise, with generous diet, promises most success. The cure must be effected by the efforts of the constitution. He says, "sometimes when a bubo is nearly healed,

it becomes changed into an ill-conditioned sore, with jagged irregular edges; the ulceration begins to extend from some part of the ulcer, attended with a sensation of pruritus or tingling; and, though small at first, will spread so rapidly, as to reach almost across the body. The aspect of the sore is foul and irregular; its edges jagged and flabby, resembling a leaf that has been injured by caterpillars; when it occurs on the penis, it will sometimes extend to near the area of the pubis, entirely or partially destroying the integuments. In these cases, the patient's ease must be consulted. Mercury will generally do considerable harm; muriate of barytes and sarsaparilla have been found most useful. The cure depends on the powers of the constitution, and the patient may ultimately do well. It is seldom very painful. Mr. P. has known the sore to run down the thigh to a great extent; he relates one case in which the disease lasted seven years. "These sores," he says, "will frequently baffle all your attempts. Do nothing to irritate: keep them clean and easy by ointment, containing the extract of lead, calomel with lime water, decoction of guaiacum; and these will keep them dry and easy. The cure depends on some particular and inexplicable change in the constitution; and when this has taken place, the sore will generally heal in a very short time." Mr. P. used to advise his patients to take no notice of it, but to go about as usual. One gentleman, with such a sore, took a tour of the Highlands!

That admirable champion of mercury, the late Dr. Colles, of Dublin, has noticed this disease, denominating it the *Horse-Shoe Ulcer*. He says, that "mercury, in general, does not serve this symptom; yet, in some cases, very minute doses of mercury will be found most useful in disposing the ulcer to heal." He then relates a case, which forcibly supports my views of the importance of the mercurial treatment; and affords decided encouragement to those who are disposed to continue its use, even under the most discouraging circumstances. *(Colles on the Venereal Disease*, p. 104.) Colles, however, does not say that these ulcers cannot be cured without mercury. On the contrary, he says, "I have seen them yield, though slowly, to other treatment, and I have known some to have been made worse by the use of mercury." With all this I agree; but I am convinced that the cases, which are not benefited by mercury, are the exception to the rule, and are very few in number, and then only *when they have existed for a long time.* That mercury is the most powerful instrument we possess to arrest the disease, I can confidently assert, as the result of above fifteen years careful observation. I believe that the sore scarcely ever attains any great size, if mercury has been judiciously and efficaciously administered, at the *onset* of the disease.

My attention was first called to this subject by my late valued friend Mr. Tyrrell. He considered, that nothing but mercury had any control over it. His observation made a great impression on me, because he was not in the habit of using mercury extensively, and he always desisted as soon as the primary sore, for which he ordered it, was healed.

In this form of syphilis, as in many of those truly called secondary, mercury is very useful up to a certain point; beyond which it disagrees with the system, making it necessary to abstain from it for a time. But, by waiting a few weeks, or even months, we may return to its use; and its efficacy is again exhibited, in the rapid improvement of all the symptoms.

London Journal, May, 1849, *p.* 439.

DISEASES OF THE SKIN.

121.—ON THE PATHOLOGY OF SKIN DISEASES.

By Dr. T. H. Burgess.

We must take a more comprehensive view of cutaneous maladies, and study this class of affections more in the light of *general* diseases than we have been accustomed to do, if we wish to arrive at an accurate knowledge of their nature; for daily observation proves that the study of diseases of the skin cannot be detached from that of general pathology, and of the many morbid conditions with which they have such numerous and varied relations. Indeed, it would be a grave error to separate certain cutaneous eruptions from lesions of other systems, when both derive their origin from the same cause, and are in reality but different symptoms of one and the same disease. The eruptive fevers and the syphilides, for example, are constitution diseases, or rather the sequels of constitutional diseases, and to view them in the light of special or local affections would be to mistake their nature altogether. Eruptions of constitutional origin, however, by long standing may sometimes assume a local character. Erysipelas and acne frequently supervene in cases of derangement of the uterine function. Strophulus is associated with the process of dentition. Urticaria, lichen urticatus, and several varieties of herpes, are often the results of a disordered condition of the digestive organs. Psoriasis and lichen agrius frequently occur during the process of gout and urinary diseases; and the hereditary nature of certain eruptions, as lepra, psoriasis, lichen, &c., is beyond all doubt. Unless we bear in mind, in our treatment of these eruptions, their intimate relation with the organic function, we are constantly liable to serious error. If, for example, we were to look upon these critical eruptions or discharges which occur at certain periods of life as *local* diseases, and attempt to suppress them by topical applications, it is unnecessary to add that serious consequences would result; whereas, if they are not interfered with, they will get well as soon as the equilibrium of the system is restored. The impetigenous eczema of infants, and those eruptions which occur at the periods of puberty and the turn of life, are examples of this kind. A knowledge of cutaneous diseases, in fact, implies familiarity with the general principles of pathology, and, above all, with the doctrine of the sympathies, with general infections, idiosyncrasies, the effects of regimen, and modes of life.

Medical Gazette, Feb. 22, 1849, *p.* 315.

122.—*On the Treatment of Erysipelas by Congelation.*—By Dr. James Arnott.—The congelation or freezing of the animal textures produced by powerful frigorific mixtures, may be considered in its three-fold character of a remedy, a prophylactic, and an anæsthetic, or preventive of pain in surgical operations.

Congelation is a remedy of many diseases affecting the nervous and vascular systems. Of external inflammation it is a certain, speedy, safe, and agreeable remedy.

Certain, because wherever congelation can be produced, inflammation ceases. Every other remedy of inflammation, as blood letting, antimony, mercury, minor degrees of cold, &c., are more doubtful in their effects.

Speedy, because congelation instantly arrests inflammation. The congestive state which sometimes succeeds, has nothing of the character of inflammation, and none of its consequences. Where the degree or duration of the refrigeration has been sufficient, or where the cause of the disease continues to operate, the inflammation will, after a considerable period, return; but a reapplication of the remedy will again immediately arrest it.

Safe, because in no instance, of hundreds in which it has been employed, has congelation been productive of any injury or untoward effect.

Congelation, in respect to its use in erysipelas, is what is termed a rational remedy. Its analogies with other acknowledged remedies of inflammation would recommend its employment in this disease. Much of the danger of the erysipelas which affects the face and neck unquestionably proceeds from the extensive and severe inflammation of the skin; and to the suppression of this the efforts of physicians have been directed. Now, as cold is a remedy of inflammation of admitted efficacy, it is reasonable to suppose that by subjecting the diseased tissue, and this alone, to a short application of a much greater degree of cold than has hitherto been employed, a greater depressing or antiphlogistic power may be exerted. Again, as experience would show that bleeding when it produces syncope is a more certain mode of checking inflammation than when it does not produce that effect, so severe cold or congelation, which, like fainting, checks the circulation of blood through the part subjected to it, may likewise be useful for the same reason, and under the same circumstances. The morbid action of the blood vessels being thus arrested for a time, the healthy circulation may, by the efforts of nature, be immediately afterwards restored. Such reasonings, however, are of little importance in comparison with the following facts.

Case.—Charlotte Shepherd, ten years of age, living at 17, New Dorset Street, became a patient of the Brighton Dispensary, on the 15th of November, 1848. When I first saw her, two days afterwards, there was much swelling and redness of the face, and the eyes were closed. Considerable fever was present, and, occasionally, delirium. She had been purged, and had taken antimonial and saline medicines without any mitigation of the symptoms. I

applied a mass of pounded ice and salt, by means of a flat sponge, to each side of the face, for about a minute, or until large patches of the skin had become white and hard, or, in other words, frozen. She did not complain of the application, but on the contrary appeared to obtain immediate relief. The salt was washed off the face, and the saline mixture ordered to be continued.

17th.—The erysipelas has extended to the neck, and has returned to one side of the face and the ear. Increase of delirium and of the general febrile symptoms. The frigorific was again applied as before to the inflamed surface, and with the same immediate beneficial result. To take a laxative, and to continue the mixture.

18th.—The fever and delirium subsided towards the evening of yesterday. The swelling has now quite left the face, and nearly the neck.

From this period the convalescence was rapid. Little medical treatment, besides attention to diet, was deemed necessary during the remaining period of attendance.

[In two other cases similar treatment was adopted, a mixture of ice and salt in a bag of thin silk gauze being applied to one part of the inflamed surface after another, until large patches of the skin were frozen. In both these cases also, the beneficial effects of the remedy were immediate, and no ill consequences followed. In reference to some other applications of congelation, Dr. Arnott says:]

With respect to its remedial properties, I shall, on another occasion, give illustrations of the use of congelation in phlegmonous inflammations, chronic diseases of the skin, ophthalmia, &c., and in certain neuralgic affections, including varieties of headache. Although headache may not often shorten life, it very often embitters it, by resisting every remedy that has been hitherto employed. In no disease have the efficiency, safety, and speedy operation of congelation been more conspicuous than in this painful affection; which appears, in many cases, to arise from a more or less permanently morbid state of the nerves of some portion of the forehead or scalp.

Medical Gazette, March 9, 1849, *p.* 405.

123.—*On Prurigo.*—By Dr. T. H. Burgess.—[Dr. Burgess is of opinion that the papular eruptions of Willan, (which Dr. B., like Alibert, would reduce to the single genus, prurigo,) are true *neuroses* of the skin; and that though other structures may be secondarily involved, the primary disorder is in the cutaneous nerves. He makes the following practical remarks on these diseases:]

A variety of the dry form of chronic *eczema* is very commonly indeed mistaken for the papular disease, and treated accordingly; hence, in great measure, the difficulty so generally complained of, of arresting the progress of that troublesome complaint. Eczema being a purely inflammatory lesion involving the whole structure of the cutis, must necessarily demand a different method of treatment to a disease which is not the result of inflammation, and in which only one of the tissues (the nervous) comprising the cutaneous en-

velope is mainly and primarily implicated. In accordance with this view of the elementary nature of the papular diseases of the skin, I have been lately in the habit of prescribing strychnia and phosphorus in those distressing cases of prurigo which reduce the unhappy patient to the most abject state of human suffering, and too often baffle the usual methods of treatment prescribed in works on cutaneous pathology. In several cases of this kind, and after the acids, alkalies, and arsenic internally, and hydrocyanic and acetic acids in the form of lotion, had utterly failed to subdue the unceasing pruritus, I have found the phosphorated ether to succeed, given internally and preceded for a day or two by repeated doses of the tincture of hyoscyamus.

In the prurigo of old age, I have also seen it succeed in allaying the tormenting itching and tingling, after the usual remedies had failed. Can it be a revivifying effect which phosphorus produces on the nervous centres that causes this alleviation of the pruritus? As the proportion of phosphorus in the young and healthy human brain is considerable, being from eight to eighteen parts in one thousand of the whole mass, or from one-twentieth to one-thirtieth of the whole solid matter: and as it is unusually deficient in idiots and in extreme old age, the loss of so necessary an ingredient of the nervous mass may occasion the irritation in the peripheral nerves which constitutes prurigo senilis. This is evidently a lesion of innervation, associated with decrepitude, and a sure indication of the gradual disintegration of those structures and functions through whose combined agency the process of life is carried on.

But why should there not be neuroses of the organ of touch, or of the skin, as well as the organs of sight, hearing, smell, and taste? It is not because the "hallucinations of the sense of touch," as the French pathologists call those morbid conditions of the skin which come under the heads of *hyperæsthesia* and *anæsthesia*, are so difficult of explanation, that we are to deny their existence. There is no doubt but several of those cutaneous disorders which we have been accustomed to regard as the result of inflammation, in consequence of placing an undue reliance on their *secondary* products, as a means of diagnosis, are in reality lesions of the cutaneous nerves, producing exaltation, or other modification in the sensibility of the skin.

A young woman, aged twenty-six, placed herself under my care suffering from a distressing pruritus, which tormented her day and night. She had been afflicted with the disease nine months previously, and for three or four months at a time she could not sleep in her bed, being obliged to pass the night on the sofa with her clothes on, from which she was frequently obliged to rise and walk about the room to seek relief from the itching. The disease was situated principally on the lower extremities, whence it extended to the pudendum. It appeared in paroxysms which were in general preceded by a tingling sensation in the parts. There was no eruption or lesion of any kind to be seen on the skin between the paroxysms, except those produced by the finger-nails during the attack, in the

attempts to get momentary relief. The patient could not resist the desire to scratch the parts until the skin became lacerated, although fully aware that by so doing she only aggravated the evil, and rendered the parts so painfully sensitive that she could not bear her clothes to touch them.

This patient had been treated at different times during the period she was suffering from the disease, for stomach complaint, disorder of the womb, and nettle-rash, which were indifferently supposed to have been the causes of the cutaneous affection. There was little or no relief obtained from the treatment pursued, and in one instance an aggravation of all the symptoms was occasioned by the application of Fuller's earth to the diseased surface. I prescribed the mineral acids, alkalies, with occasional doses of morphia, with, however, only temporary benefit. Seeing that the disease was decidedly paroxysmal, and that there were intervals distinctly marked between the exacerbations, when there was no pain and nothing to be seen but the scratches before mentioned; and not being aware of any *inflammatory* lesion presenting those characters, I treated the disease as neuralgia involving the peripheral nerves, and accordingly prescribed strychnia,—the sixth part of a grain twice a day to begin with, which was soon increased to one-fourth of a grain. The patient, at the commencement of the treatment, took occasional doses of the tincture of henbane, but no external agents were had recourse to, further than the ordinary measures of cleanliness. In the course of three or four weeks this patient was so far improved in her health that she could sleep soundly, and in her bed, relish and digest her food well, and perform the ordinary avocations without being interrupted by her old and tormenting disease.

Medical Gazette, April 6, 1849, p. 595.

124.—*On the Treatment of Specific Ulcers.*—By G. CRITCHETT, Esq., Assistant Surgeon to the London Hospital.—[In a continuation of the series of lectures on the treatment of ulcers, from which we made extracts in our last volume, Mr. Critchett treats of *specific* ulcers. And first of the *strumous* ulcer, Mr. C. says:]

The strumous ulcer is the most difficult to manage. While there remains a mass of strumous deposit in the wound, of course it acts like a foreign body, and prevents the healing process from proceeding; art may be brought to the aid of nature in expediting its removal. Should the external opening be small in proportion to the strumous mass within, it may be enlarged with advantage. When two wounds communicate beneath, they should be laid into one; the red precipitate powder, or some strong escharotic, as the potassa fusa, will hasten the removal of the morbid deposit. This latter is, however, a very severe method, particularly in a weak strumous patient, and one to which I have very rarely felt justified in having recourse. When the strumous enlargement is just forming beneath the skin, I have found advantage from painting it over either with the tincture of iodine or the solid nitrate of silver; a weak solution

of iodine is also a very valuable application to strumous sores in the form of a lotion; other stimuli, particularly the lotio nigra are often useful.

In that form of phagedænic ulcer which spreads in one direction and heals in another, it is sometimes advisable to destroy the peccant edge with some powerful escharotic, as nitric acid. In those cases where there is extensive burrowing in the cellular tissue, this would be a very severe method, and I think it quite unnecessary. It is a much better plan thoroughly to saturate small strips of lint with black wash, and with a probe thrust them to the very bottom of the wound, so as to bring the black powder into contact with every part of the ulcerated surface. In these undermining phagedænic sores, I have met with no application at all comparable to the black wash, when properly used; if it is left to the patient or a nurse it invariably fails. Having then selected what I deem a suitable specific local remedy for these cases, and having got rid of any slough or strumous deposit that may exist, I always superadd mechanical support, and my case-book and hospital experience bear ample testimony to the advantage of this combined plan, both in effecting a cure and in preventing relapses; either is insufficient of itself, but when the special character of the sore is met by a proper application, and the feeble vessels of the limb are restored to a healthy condition by strapping, a quick and lasting cure is usually established. These specific cases generally bear the support rather tightly applied, more particularly if the leg feels soft and doughy; but the same rules I have already laid down on this subject are equally applicable in these forms of the disease.

[A suitable course of medicine and generous diet are accessories in the treatment which must not be omitted. Mr. Critchett next proceeds to speak of the *menstrual* ulcer. He says:]

There are two or three modifications of this disease met with in practice: thus you have a class of cases, in which, the uterine function being entirely suspended, the system finds relief in a constant discharge from the surface of a sore, which discharge is altered in quality and increased in quantity at the usual monthly period. In other cases the uterine function is performed, but the sore becomes inflamed and painful, and increases its amount of discharge at that period; thus giving evident signs of sympathy and co-operation with the uterus. There is, again, a peculiar and very formidable class of sores, which occur either at the period when, in the natural course of things, the menstrual function is about to cease; or where, from some organic change in the menstrual organs, this discharge no longer takes place.

The first form of this disease to which I have alluded, and which may be distinguished as "the true menstrual ulcer," occurs generally in young females, soon after the age of puberty. It is often, in the first instance, of a strumous character; or it may have arisen from some external injury. The uterine function not being very fully and regularly established, by degrees it ceases, and its

place is supplied by the ulcer. I have invariably found that the breaking out of the sore has preceded the suspension of the menstrual discharge, or has been first formed prior to that period of life when the function of the uterus commences. I note this especially, because it is an important element in the consideration of the treatment of these cases. The appearance of the ulcer is characteristic of its nature: it is generally rather large, its edges are ragged, its surface is irritable, dark-coloured, and exhibits specks of blood; the surrounding parts are of a deep-red colour, but not much swollen; the discharge is thin, and often mixed with blood; the pain and soreness are generally distressing, and much aggravated at the period when the uterine function is due. When this vicarious discharge is fully established, the disease becomes most intractable. I have met with cases that have existed above three years, having resisted all the ordinary methods of treatment adopted on these occasions.

It becomes, then, an interesting inquiry, as to how we can best succeed in stemming this cruel and obstinate invasion of the young and delicate of the weaker sex. If we consult surgical authorities on this subject, we invariably find the matter rather briefly dismissed, somewhat in the following way: "Restore the healthy function of the uterus, and then the ulcer will heal." This sounds very rational and very proper, and no doubt answers exceedingly well when it can be accomplished; but according to my experience it is always difficult, and very frequently impossible. I have known cases, in which all the usual means of bringing about the healthy and regular uterine function have been carefully persevered in for a considerable period, and that, too, by very experienced and skilful practitioners, without success. Reasoning from this fact, and observing, at the same time, that the ulcer precedes the uterine derangement, I contend that it is scientifically more correct, and practically far more efficacious, to adopt a method the very converse of the one I have above stated—viz., "Heal the ulcer, and the uterine function will speedily be restored to health and regularity." I should pause ere I ventured to put forth this axiom, so opposed to everything that has hitherto been said upon the subject by so many and such high authorities, had I not repeatedly put this plan to the test of experiment, and with uniform success.

I commence, then, at once to attack the ulcer. Some stimulus is often useful in allaying the irritation; a solution of the nitrate of silver is generally the best. I then apply strapping rather tightly; for I find in all those cases in which I have, as it were, to compel a cure, in spite of the rebellion of the constitution, rather tight and very accurately applied support is necessary, more skill being here required than in common and simple cases. Though you may feel confident of ultimate success by means of this plan, it is necessary to bring with you, in the treatment of such cases, a more than usual amount of patience, and a full share of confidence in the power of your remedy. Rest is quite useless here, even in obtaining a healthy surface to begin upon. You must therefore com-

mence at once with your strapping, in the manner I have described. As the discharge is copious, it should be applied frequently, either alternate days, or every day. The wound will soon take on a healthy action, and begin to heal, and you will naturally suppose the cure is at hand; but as the monthly period approaches, in spite of all your efforts, the aspect of the sore changes, the discharge again becomes thin and copious, and much of the improvement that has taken place during the previous month is lost. You must not be discouraged by this, but must start again, and each month you will find you gain more than you had previously lost, until, at last, you succeed in entirely closing the wound, and then you are safe; the ulcer being healed, the uterus spontaneously resumes its healthy and regular function—at least, such has been my experience. But even suppose such a result should not invariably occur, you have then a simple case of amenorrhœa to deal with, which is surely far more easily controlled when uncomplicated with a vicarious discharge from an ulcer in the leg.

[With regard to the third variety of menstrual ulcer described by Mr. Critchett, namely, that occurring about the time of the cessation of the menstrual function, the sore may be cured without difficulty in the same manner as the others. But care should be taken before healing it, to get a freely-discharging issue made; for in two cases in which this precaution was neglected, Mr. Critchett observed that the patients died a short time afterwards.]

Lancet, Dec. 16, 1848, *p.* 661.

125.—*On the Treatment of Indolent Ulcers.*—By H. T. Chapman, Esq.—[Mr. Chapman treats indolent ulcers by compression combined with the application of cold; ascertaining first the temperature calculated to stimulate the dilated capillaries, without depressing too much the vitality of the part, and then maintaining such a temperature uniformly. Mr. C. says:]

As soon as all inflammatory action has been subdued by emollient and antiphlogistic measures, these may be advantageously exchanged for cold water dressing and support, applied in the following manner. The sore being dressed with a compress of lint dipped in cold water, folded once, twice, or three times, according to the degree of compression which the surgeon may deem suitable to the case, three or more moistened strips of linen or calico, about two inches and a half in width, are to be carried smoothly round the leg. These strips must be applied precisely in the same manner as the strapping recommended by Mr. Baynton; the middle of the first strip being placed upon the back of the leg, with its upper edge opposite to the lower margin of the ulcer, the ends are brought round to the front, drawn firmly, and laid down smoothly one over the other; the second strip must cover the upper third of the first; and the same proceeding must be followed with as many strips as the size of the ulcer may require. Over the strips, a calico bandage is applied, the greatest attention being paid to its equable adjustment,

so that the compression be distributed evenly over the entire surface, and its amount regulated by the sensibility of the ulcer. Where the leg is slender above the ankle, the roller is apt to fall into plaits, and furrow the skin; to guard against this inconvenience, the hollows immediately above the malleoli should be filled up by compresses of lint. The whole is then to be soaked with cold water and the moistened bandage enveloped with a sheet of oiled silk, re-opening it from time to time, to renew the cold affusion. The wet strips of linen adhere to the limb, even before the application, of the bandage, almost as closely as adhesive strapping, and are capable of affording a support, scarcely inferior to that derived from it. In the case of a gentleman, whose legs were extremely bulky, and where they were applied from the toes upward, after the mode of strapping the leg followed by Mr. Scott, the patient was in the habit of removing the roller in the afternoon, and drawing a silk stocking over the strips of linen, trusting solely to the support afforded by them until the following morning. If the ulcer secretes abundantly, it is better at first to repeat the dressing daily, although the lint will absorb much of the discharge; very shortly, however, under the action of cold, large, shining, semi-transparent granulations become compact and red, and a thin and copious secretion diminishes in amount and improves in quality, rendering a daily renewing of the dressings quite unnecessary; and, after a time, this necessity becomes still more rare; in several of the cases hereafter recorded, an interval of three, four, and even five days sometimes elapsed between each dressing, without any interruption to the onward progress of the ulcer.

The frequency with which the cold affusion is practised must be regulated by the temperature of the part, and the state of the patient's feelings; heat, uneasiness, and irritability being at once relieved by it; the age and temperament of the patient, as well as the season of the year, must also be taken into consideration. In proportion as the ulcer advances towards cicatrization, it is required much less frequently, and in the last stage of the cure may often be altogether dispensed with.

In the early management of very deep ulcers, I have found it requisite to modify the water dressing as follows: unless the cavity be filled up to the level of the surrounding skin, and its surface participate in the support given to the rest of the limb, granulations rise very slowly from the depth of the sore; successive layers of lint, according to Mr. Whateley's practice, or scraped lint—the *charpie rappée* of French surgeons—were not, I found, well adapted either to absorb the discharge, or to imbibe the water, and convey it freely to the deeper portions of the surface; in fact, such a mass soon became as impenetrable as an unctuous dressing.

Instead of lint, therefore, in such circumstances, I make use of soft sponge, torn up into very small shreds, and soaked in water; these are dropped lightly into the ulcer, and covered with a single layer of lint, over which the bandage is carried, as in shallow sores;

gentle support being thus conveyed to the entire surface, and tone communicated to the minute vessels, granulations spring up uniformly and vigorously, and fill the hollow of the ulcer, often with surprising rapidity. The sponge acts as far as its compressing power is concerned, on the same principle as the wax dressing poured into deep ulcers, in the manner suggested by Mr. Stafford; according to my experience, however, it is not only a more convenient mode of effecting the same object, but accomplishes it more speedily and completely. The shreds of sponge should be well soaked, and lightly distributed, in order to avoid any ill consequences from too much pressure by their subsequent expansion.

Under this simple plan of treatment, I am satisfied that the granulation and cicatrization, in a large majority of cases of indolent ulcers of the leg, of long standing, even when attended with a high degree of irritability, will proceed more favourably and expeditiously, and occasion less inconvenience to the patient, than under any other method whatever.

British and Foreign Medico-Chirurgical Review, Jan., 1849, *p.* 200.

126.—*A New Mode of Removing Nævi.*—By. J. C. CHRISTOPHERS, Esq.—[Mr. Christophers described the following method of removing nævi, four years ago; and further experience, he states, confirms his opinion of its efficacy. Mr. C. says:]

It requires merely a needle and a piece of waxed silk for its performance, which may be divided into two stages. 1st. That in which the ligature is passed; 2ndly, that in which the nævus is strangulated, and may be described as follows:—Take a piece of strong silk, well waxed, about half a yard long, and dip the moiety of it in ink to dye it, the more readily to distinguish the ends after it is divided; thread a needle with the same, leaving the ends equal and pass it under the centre of the part to be removed. This done, cut the ligature in the middle, leaving the needle attached to the inferior or black half of the ligature; take the same and pass it through the skin immediately below the part to be strangulated. Thread the needle with the superior or white half of the ligature, and pass it through the skin in an opposite direction to the black ligature, immediately above the part to be strangulated. Remove the needle.

2nd stage.—Tie tightly the two ends of the black loop that includes the inferior half of the nævus. Tie in the same manner the two ends of the white loop that includes the superior half of the nævus. The four ends remaining, two black and two white, are now to be tied alternately and tightly, the one to the other, and the operation is completed. The whole mass to be removed is by this means completely and entirely enclosed in a double circle, both from within and without, and is most effectually and permanently strangulated.

Medical Gazette, Dec. 1, 1848, *p.* 935.

127.—*Case of Nævus of the Lip Treated by Ligature.*—Reported by H. Welch, Esq.—Jan. 4th, 1848.—W. F., aged twenty-three, bricklayer, was admitted under the care of Mr. Luke, desiring to be relieved of the incumbrance arising from an immensely enlarged lower lip, caused by a nævus which had existed from his earliest recollection. An attempt was made by Mr. Luke, in 1843, to arrest the development of this disease by the passage of a series of threads through the swelling, which, having caused considerable inflammation, was attended by temporary success. Of late, however, the lip has rapidly and enormously increased, and has given rise to very great annoyance, both in speaking and taking food. There is also extensive discoloration of the skin over the lower part of the face, the neck, and upper part of the chest: but this is not in progress of extension, and gives no inconvenience.

For the purpose of removing the large mass of diseased lip, Mr. Luke adopted the following proceeding:—A ligature, three yards in length, was armed with nine curved needles, which were placed about twelve inches apart from each other. The first needle was passed through the lip from its inside, near the left angle, a little beyond the limits of the tumour; the second through the lip, a little distance to the right; the third about the same distance, still more to the right; and so on with the other needles, until the right angle was reached, the last needle being passed a little beyond the tumour on the right side. In this way seven of the needles were used; the remaining two, being unnecessary, were removed. The needles were next cut off, and eight loops of ligature were thus left. Upon tying, exteriorly, the ends of the loops with each other, tightly, the whole of the tumour was insulated from the surrounding parts, and its circulation stopped. This was done most effectively, by reason of each ligature embracing a small portion only of the lip—a proceeding which had the additional advantage of not producing any puckering or drawing-in of the lip.

[The after-treatment consisted chiefly in opening the tense insulated part of the tumour with a lancet, and the application of opiate lotions: aided by these means the operation was quite successful.]

Lancet, Feb. 17, 1849, *p.* 174.

128.—*On the Treatment of Cancer of the Lips.*—By Dr. W. P. Brookes, Cheltenham.—[Dr. Brookes applies the chloride of zinc in these cases. He says:]

I have within the last four years, had two cases under my treatment, in which the upper lip was the primary seat of the disease, and three in the lower lip: short notes of each case I now append.

F. S., aged fifty-four, residing in Cheltenham, had suffered some time from a scirrhous sore, with everted edges, and discharging a most offensive odour, in the upper lip: this had once been extirpated, but it reappeared in a few months afterwards. In February

last he consulted me: I then found him with the whole of the upper lip involved in a large cancerous sore, giving out so disagreeable an odour, that the room in which he resided was barely to be tolerated. This sore also extended into the cheek on the left side, and up to the border of the eyelid, by its pressure closing the lower eyelid, so that he could not see with the left eye. It had also opened into the ductus stenonis: there was no enlargement of any of the glands. He would not hear of any operative procedure; and the sore was dressed with chloride of zinc and gypsum, but with no other effect than, in a great degree, removing the disagreeable odour. In a short time the general health gave way, and he removed into the country for change of air, so that I lost sight of him; but, I doubt not, the case has terminated in death long ere this.

Mrs. Fitzgerald, aged sixty, washerwoman, residing in Taylor's-court, has had a cancerous growth of the right side of the upper lip for two years. In March, 1848, she came under my notice. I found her with more than half of the upper lip in an ulcerated state, extending down the cheek to the chin on the right side, saliva constantly dribbling away; the parotid and submaxillary glands enlarged and diseased; the ulcerated surface unhealthy; edges everted, and giving out an offensive cancerous odour; general health in a very bad state; and this gradually becoming worse, she died in a few weeks after my first seeing her.

Jesse Castle, aged forty-two, a strong, healthy-looking man, came under my care with a scirrhous sore of the lower lip and centre of the chin, the size of a five-shilling piece; no enlargement of glands, and general health very good. He attributed the first origin of the disease to an impoverished diet. After three applications of chloride of zinc and gypsum, healthy action was set up in the sore, and it quickly healed. I have been in the habit of seeing this man almost daily since he recovered, now more than four years back, and he continues free from any return of the disease.

W. B., aged forty-eight, residing in Cheltenham, was admitted a patient of mine on the 1st of July, 1848. Has now a sore, the size of a half-crown, in the centre of the lower lip, with everted edges of a scirrhous nature. At the lower part of the sore was a hard red tumour, the size of a nut, and very painful to the touch. Two months back, this portion of the lip was removed by a surgeon for a cancerous growth; the edges of the wound united well, but the disease again appeared very rapidly after the operation; there is no glandular disease; the patient positively refuses to have the knife again used. This is a very favourable case for the use of the chloride of zinc, which is now being applied, and I doubt not will give him some benefit.

I have seen the chloride of zinc exert a most beneficial effect in cancerous sores, and those in which the malady has taken too great a hold on the constitution, assisting, in a great measure, to overcome the offensive odour of the disease. It also exerts a good effect in stubborn ulcers, especially with callous, hard, everted

edges, and will rapidly set up a healthier action when other remedial means have failed; the surface will speedily granulate and heal.

The mode in which I use the remedy is, by taking two parts of chloride of zinc, and three parts of gypsum, spreading the powder over the surface of the sore, protecting the edges of the healthy skin with vinegar, and applying in about a quarter of an hour a soft poultice.

Medical Times, Dec. 30, 1848, *p.* 196.

129.—*On Traumatic Gangrene.*—By J. P. VINCENT, Esq.—[Mr. Vincent would not amputate for traumatic gangrene. He would give food when the stomach can bear it, and stimuli if required.]

I am convinced, (he says) that by adopting this course, of watching the expressions which the constitution shows during the first three or four days of the first stage of very serious injuries, and by throwing in brandy, when the indications demand it, that there can be no occasion to amputate on account of traumatic gangrene.

The cases which M. Larrey represents to have been saved by amputation, were actually rescued from death by the administration of brandy. This liquor, in fact, he regards as the great resource for sustaining the action of the heart in these circumstances, and beyond all comparison the best means. Some years ago, he states that he tried the comparative efficacy of brandy and ammonia: and the superiority of the former was marked and distinct. Ammonia, he thinks, impairs the action of the stomach more than any other agent. This impairment is the very thing to be avoided; and what is required, is to make the functions of the stomach and the circulating system go on with some degree of energy, till, in the struggle between the disease and the constitution, the latter shall get the superiority. Ammonia also impairs the secretions, and in so doing causes great evil. To maintain them in such circumstances, Mr. Vincent recommends the use of mild preparations of mercury with antimony. At all times where the secretions are bad, it is necessary to keep up regular evacuations, which he maintains not to be weakening, according to the recent doctrines of some speculative innovators, but which he knows to be necessary actions for preserving health.

Edinburgh Medical and Surgical Journal, Jan 1849, *p.* 173.

130.—*Conclusions respecting Hospital Gangrene.*—By G. J. GUTHRIE, Esq., F.R.S., &c.—First. Hospital gangrene never occurs in isolated cases of wounds.

Second.—It originates only in badly-ventilated hospitals crowded with wounded men, among and around whom cleanliness has not been too well observed.

Third.—It is a morbid poison remarkably contagious, and is infectious through the medium of the atmosphere applied to the wound or ulcer.

Fourth.—It is possibly infectious, acting constitutionally, and producing great derangement of the system at large, although it has not been satisfactorily proved that the constitutional affection is capable of giving rise to local disease, such as an ulcer; but if an ulcer should occur from accidental or constitutional causes, it is always influenced by it when in its concentrated form.

Fifth.—The application of the contagious matter gives rise to a similar local disease, resembling and capable of propagating itself, and is generally *followed* by constitutional symptoms.

Sixth.—In crowded hospitals the constitutional symptoms have been sometimes observed to precede, and frequently to accompany the appearance of the local disease.

Seventh.—The local disease attacks the cellular membrane principally, and is readily propagated along it, laying bare the muscular, arterial, nervous, and other structures, which soon yield to its destructive properties.

Eighth.—The sloughing of the arteries is rarely attended by healthy inflammation, filling up their canals by fibrine, or by that gangrenous inflammation which attends on mortification from ordinary causes, and alike obliterates their cavities. The separation of the dead parts is therefore accompanied by hemorrhage, which in large arteries is usually fatal.

Ninth.—The operation of placing a ligature on the artery at a distance, or near the seat of mischief, does not succeed, from the incision being soon attacked with disease, unless it has been arrested in the individual part first affected, and the patient has been separated from all others affected by it.

Tenth.—The local disease is to be arrested by the application of the actual or potential cautery. An iron heated red-hot, or the mineral acids pure, or a solution of arsenic or of the chloride of zinc, or other caustic which shall penetrate the sloughing parts, and destroy a thin layer of the unaffected part beneath them.

Eleventh.—After the diseased parts have been destroyed by the actual or potential cautery, they cease in a great measure to be contagious, and the disease incurs less chance of being propagated to persons having open wounds or ulcerated surfaces. A number of wounded thus treated are less likely to disseminate the disease than one person in whom constitutional treatment alone has been tried.

Twelfth.—The pain and constitutional symptoms occasioned by the disease, and considered as distinct from these symptoms which may be dependent on disease endemic in the country, are all relieved, and sometimes entirely removed, by the destruction of the diseased surface; which must, however, be carefully and accurately followed to whatever distance and into whatever parts it may extend, if the salutary effect of the remedies is to be obtained.

Thirteenth.—On the separation of the sloughs, the ulcerated surfaces are to be treated according to the ordinary principles of surgery. They cease to eliminate the contagious principle, and do not require a specific treatment.

Fourteenth.—The constitutional or febrile symptoms, whenever or at whatever time they occur, are to be treated according to the nature of the fever they are supposed to represent, and especially by emetics, purgatives, and the early abstraction of blood if purely inflammatory, and by less vigorous means if the fever prevailing in the country is of a different character.

Fifteenth.—The essential preventive remedies are separation, cleanliness, and exposure to the open air—the first steps towards that cure which cauterization will afterwards in general accomplish.

Lancet, Dec. 30, 1848, *p.* 715.

131.—*How to Prevent Pitting from Small-Pox.*—[Dr. Ranking suggests the application of collodion to the face in cases of small-pox, to prevent pitting.]

Lancet, Jan. 13, 1849, *p.* 50.

132.—*On Solutions for Protecting the Skin against Contagion.*—By W. Acton, Esq.—The author states that he has been engaged in performing various experiments with solutions of gun cotton, gutta percha, and caoutchouc, with a view of testing their property of protecting the surface from the influence, by contact, of contagious poisons, and the following are the conclusions at which he arrived: 1. That a solution of gun cotton, when dry, corrugates the skin too much to be available for the purposes required. 2. That gutta percha alone is devoid of elasticity and sufficient adhesive quality, whilst the solution of caoutchouc wants body and is too sticky; but that—3. The compound solution of caoutchouc and gutta percha possesses the requisite qualities to fulfil the purpose required. It is prepared by adding a drachm of gutta percha to an ounce of benzole, (the volatile principle of coal naphtha,) and ten grains of india rubber to the same quantity of benzole, each being dissolved at a gentle heat, and then mixed in equal proportions. The author has employed this compound in painting the surface surrounding a chancre with the solution, and found that the acrid secretion had no effect upon it when dried, and warm or cold water may be applied with impunity. He considers that it may be employed advantageously in many and various ways, as in protecting the hands during post-mortem examinations, in preserving the cheek from excoriation in gonorrhœal ophthalmia, and in covering the parts contiguous to a sore where water-dressing is the application, &c. A letter from Mr. Quekett to the author states the results of that gentleman's examination of these several solutions under the microscope. A dried film of the compound is described by him to be perfectly elastic and free from perforations, though in many parts less than the 1-500th of an inch in thickness.

Lancet, Nov. 25, 1848, *p.* 589.

133.—*Remedy for Baldness.*—By Dr. NELIGAN.—As a remedy for baldness which follows herpes or pityriasis, Dr. Neligan recommends the following pomade, from which he has found great benefit. Prepared lard, two ounces; white wax, two drachms; melt together, remove from the fire, and when the mixture is beginning to thicken, add, with constant stirring, balsam of tolu, two fluid drachms, and oil of rosemary, twenty minims. In very chronic cases, or where the baldness has long existed, a drachm of tincture of cantharides may be added.

Medical Gazette, March 16, 1849, *p.* 483.

DISEASES OF THE EYE AND EAR.

134.—ON THE TREATMENT OF FISTULA LACHRYMALIS.

By W. WHITE COOPER, Esq., Surgeon to the North London Eye Infirmary.

[In order to show the disadvantages attending the practice of leaving a canula in the nasal duct, Mr. Cooper relates a case in which a patient was rendered miserable for years, by reason of a tube impacted there, and which he was at length enabled to extract. Respecting the treatment to be adopted in cases of lachrymal obstruction, Mr. Cooper observes:]

It is very important, when consulted by a patient labouring under obstruction of the lachrymal duct, to ascertain the condition of the mucous membrane of the nostril. This, especially in strumous subjects, will often be found thickened, congested, and ulcerated. The obstruction to the passage of the tears may, in such a case, arise either from the closure of the lower orifice from this condition of the schneiderian membrane, or from the extension of the morbid changes into the duct itself. Under these circumstances, much benefit will be derived from the use of an ointment composed of three parts of the unguentum hydrargyri ammonio-chloridi, to one part of oil of almonds. This should be applied with a camel-hair brush, and well swept over the membrane of the nostril. A lotion of four grains of nitrate of silver to an ounce of distilled water, applied in the same manner, is also frequently of great service. But with such measures, careful attention to the general health should be combined.

On several occasions I have seen much embarrassment caused during the operation for fistula lachrymalis, by the difficulty of finding the orifice of the duct with a probe or style, after the sac has been opened and the knife withdrawn. This will be obviated by making the incision with a narrow-bladed knife, which should be passed into the mouth of the duct; a fine probe should then be slid along the blade into the duct, and the knife withdrawn. The probe will at once guide the style into the duct, and the operation be completed.

London Journal of Medicine, April, 1849, *p.* 323.

135.—*On the Absorption of Blood Effused into the Eye.*—By Wm. Bowman, Esq., F.R.S., &c.—It is a wonderful thing to see blood which has been poured into the aqueous chambers by some accidental blow upon the eye, disappear in the course of a few days by solution in the aqueous fluid and absorption. If the organ escapes active or disorganizing inflammation, a week or ten days are often sufficient for the removal of blood which has nearly filled the chambers: but something even then will depend on circumstances. If the blood has coagulated into a firm clot, its absorption is retarded. I had recently a case in which a young man had an injury to the eye late in the evening, but soon after went to bed and slept soundly. When I saw him next morning, I observed that he had been sleeping on his right side, for the blood had formed a clot, occupying about the right two-thirds of the chamber, and bounded by a very sharp but somewhat concave or cupped edge, placed vertically. It was remarkable that the iris (at least the uncovered portion of it) remained freely moveable. When the pupil was contracted by a strong light, he was blind with this eye, but the eclipse of the pupil became only partial when he turned with his back to the window, so as to dilate it in concert with the opposite one, and he could then see. This clot was absorbed in about a fortnight. On the other hand, when the blood is diffused through the aqueous humour, by frequent change of posture, during the period when it might coagulate, it does not form a solid clot, and is more speedily absorbed, sometimes, if in small quantity, in three days.

I imagine that the blood in such cases mixes with, and its red particles swell, and give up their colouring matter to, the aqueous humour as they would to water, and that this is the occasion of their very rapid disappearance; for a most remarkable difference is noticeable between the result in these instances, as compared with those in which blood escapes into the chambers, when they are already occupied by yellow serum, the consequence of pre-existing disease. For here the blood may remain for many months almost entirely unchanged, either in colour or quantity, just as it might do in a bottle of serum, excluded from the action of the air. The serum does not dissolve the red particles nor the coagulated fibrin, how then could we expect these to be absorbed? Nevertheless, a very slow change does go on; some slight differences are constantly taking place between the variable serum of the blood, and that occupying the chamber, owing to which a very gradual interchange is wrought between them, and the clot becomes paler. I have watched a small clot during six months, under these circumstances, ere it lost its shape or characteristic hue. Time does not allow me to allude to the changes in the aqueous chambers occasioned by inflammation, many of which are of the most interesting character, and most instructive to the student of pathology.

Medical Gazette, Dec. 1, 1848, *p.* 922.

136.—ON VARIOUS DISEASES OF THE EAR.

By Joseph Toynbee, Esq., F.R.S, &c.

[The following observations were made by Mr. Toynbee in reply to questions put to him at the Medical and Chirurgical Society:]

1. The treatment of chronic inflammation and thickening of the mucous membrane lining the tympanic cavity consists in the use of leeches, followed by an ointment, composed of a drachm of powdered cantharides to an ounce of simple ointment, or of simple ointment, or of the tincture of iodine, below the ears, and as near to the tube as possible. To the outer half or two-thirds of the external meatus a solution of nitrate of silver is to be applied every third or fourth day; the salt is to be dissolved in water, and its strength may vary from half a drachm to a drachm of the salt to an ounce of water. In some cases the surface of the membrana tympani is to be washed with a weak solution of the nitrate of silver, from four to six grains to an ounce of water. Where the mucous membrane of the fauces is thick or relaxed, astringent applications should be made. Small doses of blue pill, the bichloride of mercury, or mercury with chalk, should be administered, not with the object of producing salivation, or any depression of the system, but to aid the local applications in promoting absorption. Warm bathing, exercise in the open air, the avoidance of wine and stimulants, and of close and warm rooms, should be strictly enjoined. Under this treatment, cases of deafness of many years' standing have been cured or relieved.

2. Catheterism of the Eustachian tube is an operation very rarely called for; in nine cases out of ten, by means of the otoscope,* air is distinctly heard to enter the tympanic cavity, or there are other unequivocal symptoms indicative of the pervious state of this tube;† practical experience with the deaf quite agrees with the result of the dissections of the Eustachian tube.

3. Besides the otoscope, in order to arrive at something like an accurate diagnosis of the nature of ear diseases, it is requisite to use a small lamp and a delicate silver speculum. By means of the two latter instruments the exact state of the meatus and membrana tympani can be ascertained. It will be observed that the latter structure is not unfrequently more concave than natural—a condition which is produced either by direct adhesion of the membrana tympani to the inner wall of the tympanum, or through the agency of membranous bands, or by a contraction of the tensor tympani muscle.

5. The principal disease observed in the fenestra rotunda consists in the presence over it of a distinct false membrane, which is

* An elastic tube, twenty inches in length, each end being tipped with ebony; one extremity is introduced into the external ear of the patient, the other into that of the surgeon, while the former attempts to make a forcible expiration with closed nostrils.

† Although the air is heard to enter the tympanic cavity, it does so with the production of a variety of sounds, as a puffing, bubbling, and cracking, according to the condition of the mucous membrane of the tympanum.

attached to the margins of the fossa fenestræ rotundæ; the latter fossa is often completely filled up by the thickened mucous membrane of the tympanum.

6. Many deaf persons, as in the case of one of the patients in whom there was found to be complete anchylosis of the stapes to the fenestra ovalis, hear musical sounds when sonorous vibrations can be made to act upon the nervous expansion, as through the medium of solids.

7. My experience has not been sufficient to indicate by the kind of deafness the particular part of the ear affected.

8. As a rule, I have not found the fluids of the labyrinth deficient in old persons, but the mucous membrane of the tympanum and the membrana tympani have been the seat of the disease.

9. Some deaf persons hear better in a noise, as in a carriage, than when quiet, because the fluid of the vestibule is thrown thereby into a state of undulation, and in this state can receive the vibrations of the thickened membrana of the fenestra rotunda, which are much less powerful than is natural; indeed, supposing the views on the physiology of the tympanum advanced by Mr. Brooke to be correct,—and thus far all my researches tend to establish their accuracy,—in those cases where the stape is so firmly fixed as not to be able to press upon the labyrinthous fluids, and give them a certain state of tensity, the vibration produced by a carriage, or by a loud sound, would in some measure be a compensation.

10. In some deaf persons there is an over sensibility of the nerves of the ear; and a loud sound, or a loud voice, aggravates the malady by causing a forcible contraction of the muscles of the internal ear, and a rigid state of the membrana tympani.

11. Tinnitus aurium is probably dependent upon the constant compression of the contents of the vestibule, and by the pressure inwards of the stape by means of rigid bands of adhesion, thickened base of the stapes, &c.

12. There are cases where loud reports produce a rupture of the membrana tympani; others, in which the hearing becomes gradually dulled, as in the right ear of sportsmen. I have not been able to dissect any cases tending to elucidate the pathological condition.

Medical Gazette, Feb. 23, 1849, *p.* 334.

137.—*On the Deafness of Elderly Persons.*—By Joseph Toynbee, Esq., F.R.S., &c.—[Mr. Toynbee begins by stating that deafness is not so common in old people as is generally supposed, and that it does not depend upon the decline of nervous power. He says:]

The results of my experience tend to shew, that this decline of the power of hearing in old age, is dependent upon the influences to which aged persons are frequently subjected; namely the prolonged stay in warm and close rooms, the avoidance of the open air, the cessation from bodily exertion, the want of attention to diet, and to the healthy performance of the functions of the skin; and that it

does not depend upon the decline of nervous power, or upon an atrophy of the tissues which compose the organ of hearing. On the contrary, an extensive field of *post mortem* investigation has demonstrated, that the *most frequent* pathological condition found in cases of senile deafness, is a considerable increase in the substance of the mucous membrane lining the tympanitic cavities; and that the evidences of atrophy of the tissues are very rare. The pathological condition *second* in frequency in these cases, is a thickening of the *membrani tympani;* and the *third* consists in the presence of bands of adhesions, which connect together various parts contained in the tympanic cavity and these contents to the walls of the tympanum. The examination during life of elderly patients suffering from deafness, quite agrees with the results of the pathological researches. Thus, while the external surface of the membrana tympani remains smooth and shining, its substance is seen to be whiter than natural; upon attempting a forcible expiration with closed nostrils, air is heard by the otoscope to enter the tympanic cavity, but it produces an unnatural sound; the hearing is generally worse during an attack of cold, and in dull weather.

[After giving the details of a number of dissections of the ears of deaf people, Mr. Toynbee goes on to say:]

It being now established by dissection that the most frequent pathological condition in the ears of elderly deaf persons consists of a thickened state of the mucous membrane, the presence of bands of adhesion, and a thickened condition of the membrana tympani—any one of which circumstances is sufficient to prevent the passage of sonorous undulations from the membrana tympani to the expansions of the auditory nerve—it is highly important to inquire whether any remedial measures can be suggested which will tend to diminish these diseased conditions, and consequently improve the power of hearing. Practical experience induces me to believe, that not only may the thick membrana tympani be relieved, but the thickened mucous membrane be so reduced, and in some cases the bands of adhesion so far relaxed, that their presence will offer scarcely any impediment to the function of hearing.

The local application most suitable for this purpose which I have tried is that of a solution of argenti nitras, of a strength varying from half a drachm to two drachms of the salt to an ounce of distilled water. Proceeding from the exterior orifice of the meatus externus, the passage may be touched to an extent varying from one-half to two-thirds of its length every third or fourth day. In some cases the membrana tympani also may be washed with a solution of argenti nitras, of six grains to the ounce. Where the noises are loud, and the symptoms indicate much congestion in the ear, leeches should be applied immediately *below*, not *behind*, the ears; and, where there is irritation of the external tube, an ointment, composed of half a drachm of pulvis cantharidis added to an ounce of simple ointment, and applied behind and below the ear, either daily, or every other day, will be found beneficial.

The administration of alterative doses of pilula hydrargyri, hydrargyrum cum cretâ, or the hydrargyri bichloridum, is very useful; but it must be always recollected that these doses ought to be so proportioned, that neither debility nor any other unpleasant symptom shall be produced; in other words, so gentle should be the alterative, that no sensation should suggest to the patients that they are under a course of medicine.

In addition to the medicines recommended, patients should be cautioned to avoid warm close rooms, and sitting very near the fire; no wine should be taken unless diluted with water; daily exercise, and where possible on foot, should be taken in the open air; together with a warm bath every week or ten days. This course of treatment has been productive of the greatest advantage in several cases of deafness of a most unpromising character. All the cases which I shall now proceed to cite, are those of patients who considered old age to be the cause of their failure of hearing, and some of them were older in constitution than the mere statement of their years would indicate.

Case 2.—R. B., Esq., aged eighty, in tolerable health, consulted me on the 29th March 1844, on account of deafness in both ears. He stated that three years before, the power of hearing began gradually to decline in the right ear, and had continued to do so up to the time of consultation, that, about six months previously, the left ear had been similarly affected, and that his deafness had so much increased as to disable him from hearing the voice without the aid of a speaking trumpet. He was unable to assign any cause for the deafness. Upon examination, the membrana tympani in each ear was observed to be dull and opalescent, and although by aid of the otoscope, the air was heard to pass into the tympanic cavities, yet it did so with a bubbling crackling sound, indicating obstruction. Two grains of *pilula hydrargyri* were ordered to be taken every night and a stimulating liniment to be applied around and below the ears. This plan having been persevered in for about three weeks, and some slight improvement experienced, the patient was directed to take one grain of *hydrargyrum cum cretâ* daily; and at the end of two months this gentleman recovered his hearing, and gave up the use of the speaking-trumpet.

Case 3.—J. P., Esq., aged sixty-four, consulted me in July 1845. During the last four or five years the right ear has been growing deaf, and the deafness is so far advanced as to render the ear useless to him. Has been suffering from a cold for a few days, during which there has been a sensation of singing and of vibration in the head and ears, accompanied with deafness. In each ear there was a large collection of wax, on the removal of which the symptoms somewhat abated. The membrana tympani of both ears was white. Air passed freely into the tympanic cavities. The fifteenth of a grain of *hydrargyri bichloridum* thrice a-day was prescribed, and counter-irritation about the ears. In the course of six weeks the patient had perfectly recovered.

Case 4.—Lady R., aged sixty-two, consulted me in December 1848, for a deafness which had come on during the preceding month, and gradually increased, till by the time I saw her, it was requisite to speak loud and close to the ears. The deafness had been first perceived after a cold, and was accelerated by an attack of influenza. The feeling in the right ear was that of a veil hanging over it. In each ear the *membrana tympani* was white, and air passed freely into the tympanic cavities. The treatment pursued consisted in the application of a solution of *argenti nitras* to the outer half of the external meatus; beginning with the strength of a drachm of the salt to an ounce of distilled water, afterwards increasing it to double that strength, and occasionally applying the *argenti nitras* in the solid form. This course of proceeding, coupled with the administration of alterative doses of *pilula hydrargyri*, effected so great an improvement, that in two months this lady had no difficulty in hearing in ordinary society.

Case 5.—Mrs. A. T., aged sixty-seven, consulted me in April 1845. She stated that when eight years of age she fell down on the *left ear*, and had been deaf of that ear ever since. About four years ago, loud internal noises disturbed the right ear, and increased to so distressing a degree, that this lady felt as if she were continually travelling in a carriage over gravel; at times a loud explosion would be heard, succeeded by acute pain. She can scarcely hear her own voice, and is obliged to make use of a trumpet in society. The ears seem to her stopped up with pegs. She attributes this deafness to a close attendance upon the sick room of her husband during a long illness.

Right Ear: Membrana tympani concave, and evidently nearer to the promontory than is natural, and the membrane is so white that the malleus is not distinguishable.

Left Ear: Membrana tympani has been entirely removed by ulceration.

Treatment.—In the first place, leeches were placed immediately below the ear; tincture of iodine was applied to the external meatus of the right ear; and three grains of *pilula hydrargyri* were given every night.

June 3.—Feels much better; has less confusion in the head, and more confidence in herself.

June 15.—The noises are so much diminished, that she is no longer troubled by them; is feeling stronger and better, and the hearing is improved.

Case 6.—Mrs. T., aged seventy, applied to me in May 1845. Has been deaf for the last two or three years, especially in the *right ear*. The deafness came on with a feeling of pulsation, and was increased by travelling on a railway. There is a constant singing in the right ear.

Right Ear: Hearing distance* half an inch. External meatus slightly tumefied. *Membrana tympani* white like parchment.

* I have used a watch for several years which is heard distinctly at a distance of three feet by a healthy ear; with this watch I have always calculated the hearing distance.

Left Ear: Hearing distance one inch. Membrana tympani quite white.

I had not an opportunity of watching the progress of this case, but it is introduced here to show the common condition of the membrana tympani in senile deafness.

CASE 7.—J. C., Esq., aged sixty-four, consulted me in November 1844. His father became deaf at the age of fifty, and he has a sister deaf. About a year ago, he found that he was deaf in the left ear; might have been deaf a longer time; but at the period mentioned, a singing commenced in the left ear which has continued without intermission ever since. Occasionally it is much diminished. The noise and deafness are both worse during a cold. The right ear is not so bad as the left. When he closes the right ear he cannot hear any sound naturally.

Right Ear: Membrana tympani opaque; the handle of the malleus is only just discernible. When air is forced, the otoscope enables air to be heard entering the tympanum in a series of small puffs. After the air has been forced into the tympanum, a cracking sensation is experienced. Hearing distance two inches.

Left Ear: Membrana tympani white; handle of malleus not discernible; air enters the tympanum in a short puff. Hearing distance, absolute contact.

I prescribed for this gentleman two grains of *pilula hydrargyri*, to be taken every night, and tincture of iodine was applied behind the ears. In the course of three months I saw him again, and found the hearing decidedly improved; the noises also had much diminished.

CASE 8.—Mrs. R. N., aged sixty-four, consulted me August 2, 1844. For the preceeding four or five months deafness had been coming on, and had lately so much increased, that she finds it difficult to hear any conversation. Has for several years been subject to occasional dulness of hearing. The present deafness was apparently produced by an attack of cold, which left a sensation of fulness in both ears. The membrana tympani of each ear is quite white.

TREATMENT.—One-twentieth of a grain of *hydrargyri bichloridum*, in conjunction with *vinum ferri*, was administered three times a-day. The dose of bichloride was subsequently increased to one-sixteenth of a grain, and a solution of *argenti nitras*, half a drachm of the salt to an ounce of distilled water, was applied to the outer half of the external meatus. In the course of three months this patient recovered her hearing, and has remained quite well ever since.

In the above paper I have only adverted to the more frequent causes of deafness in elderly persons. There are other cases in which the stapes become more or less firmly anchylosed to the margin of the fenestra ovalis, and in which little or no relief can be anticipated; these cases, however, as far as my experience enables me to judge, are comparatively rare.

Monthly Journal, Feb, 1849, *p.* 521, *and March*, 1849, *p.* 570.

TOXICOLOGY, &c.

138.—NEW PROCESS FOR THE DETECTION OF METALS IN MEDICO-LEGAL RESEARCHES.

In the Annales d' Hygiène Publique, for January, 1849, we find a paper by M. H. Gaultier de Claubry, on a "Process by which all Metals can be obtained by a single operation, in chemico-legal researches." His objects are,—1, to obtain in all cases a solution of the metal; 2, to collect the metal from the solution; and 3, to present it in solution, in as concentrated a form as possible, to the action of chemical reagents. He says:

With this intention (that of obtaining a perfect solution of the metallic substances), hydrochloric acid or chlorine have been employed, with more or less advantage. Without stopping to discuss the advantages or inconveniences arising from their employment, we may say, that the alteration desired to be effected by them is always more or less difficult, and that a great proportion of the organic matter resists their action. We know, from numerous facts, how much more readily a body enters into a new combination when in a nascent state, than when in the form under which we see it; and it is precisely in this state that chlorine may be made available for the object which occupies our attention. . . If we introduce any organic matter into fuming hydrochloric acid, and, after having removed the fatty matters, which are altered with difficulty, gradually add concentrated nitric acid to the fluid, either cold or slightly warmed, a complete solution is obtained of every thing, with the exception of fatty matters. The solution is almost colourless, transparent, and can be afterwards tested with the greatest facility.

The stomach, intestines, liver, products of vomiting, excrements, blood, urine, wine, milk, earth from burying-grounds, etc., etc., can all be treated after this method, which requires no particular care, so that the operation is performed as easily as the solution of a metal in an acid. Where the poisonous agent is arsenic, if the operation be conducted slowly, the metal does not pass off by evaporation; however, as a portion of chloride of arsenic may be volatilized, and as the chlorine and acid require some means to prevent them from passing off, and incommoding the operator by filling the laboratory with their vapours, it is always best to use a retort furnished with a tubular receiver. When the operation is finished, the condensed liquor is to be treated in the manner to be presently described. A tubular retort, into which are introduced in succession, first, the hydrochloric acid, then the suspected materials, and finally the nitric acid, is thus sufficient for the operation. If it be known that arsenic do not exist, and there be no necessity for guarding against the escape of acid vapours and of chlorine, the operation may be performed in a matrass. By this process, the

difficulties are prevented, which arise from the employment of sulphuric acid for the destruction of the organic materials, and a perfectly liquid product is obtained.

When the materials are much disorganized, the nitric acid is to be introduced gradually, and gentle heat is to be applied. When, after successive additions of the acid, the organic matters have disappeared, leaving only fatty matters, the liquor is to be decanted, and the residuum washed several times in distilled water. This is to be poured off, and mixed with the acid solution. After this, the detection of the metals becomes extremely easy, and may be effected in various ways.

If it be desired to use hydro-sulphuric acid, the nitric acid must be driven off, by boiling the liquor with an excess of hydro-chloric acid, until chlorine ceases to escape: after this, the liquor will only have to be tested for zinc, which may be present accidentally, or for those metals which are not precipitable by hydro-sulphuric acid. If Marsh's test is to be employed, the liquor must be saturated with pure potash; and, after decomposition has taken place, sulphuric acid must be added, till the last traces of nitric acid are removed. The operation may then proceed in the ordinary manner.

I have employed another process, which seems to offer important advantages, and is easy to be performed; it depends on the precipitation, by a galvanic current, of the metals in solution. After having concentrated the liquors, as far as experience may determine to be necessary for driving off an excess of acid, there are to be placed in the solution two plates of platinum, or a single plate of that metal, forming the cathode of a permanent battery; and another of zinc (if that metal be not sought for), of tin, or platinum, forming the anode. After an interval of greater or less duration, according to circumstances, but never exceeding, in the most unfavourable conditions, eight or ten hours, the platinum is covered by a deposit of the metal, or metals, which were in solution. This deposit is to be washed, and treated with hot or cold nitric acid; a solution of the metal or metals is thus obtained, which, from the small quantity of liquid, can be operated on with the greatest facility. In this way, almost infinitesimal quantities of the various metals may be detected; and it is obvious that the same proceeding is applicable to all. with the exception of silver, which is rarely to be tested for in cases of poisoning, and zinc, which necessitates the employment of tin or platinum, as the anode of the pile.

Although sparingly soluble, chloride of lead dissolves in an excess of hydro-chloric acid easily enough for all the lead to be detected in the liquor.

If the presence of arsenic be suspected in the matters to be examined, the liquids procured by the treatment with nitric acid, must be saturated with potash; and after the solution has been conveniently concentrated, must be remixed with the solution of the organic products. In no other case have volatile products to be dealt with.

It is not worth while to describe the numerous experiments which

I have made made on this process, as, in the hands of chemists, it will present no difficulty in its application.

The legal chemist is not only called on to afford light to the investigations of justice, in cases of poisoning, but frequently also to perform experiments, with the view of detecting the presence of substances which are not in sufficient quantity to act at once as poisons, but whose use is to be prevented on account of the accidents to which they may give rise: *e.g.* the presence of copper in bread. It is well known, that bakers have sometimes fraudently introduced extremely small proportions of sulphate of copper into paste. The combustion of the charcoal from bread is very tedious; but an examination is performed with ease and rapidity by the process which I have described. It permits a large quantity of bread to be operated on, and a repetition of the experiments, with a degree of exactitude, which leaves nothing to be desired.

When, in testing for zinc in bread, or in other organic matters, recourse is had to carbonization, there is always danger of a portion of the metal being volatilized; by treating it with aqua regia, the operation is rendered easy, and no part of the metal is lost. It is not necessary to mention all the other circumstances to which this new method may be applied. I have met with no case in which I have not been able to employ it; and hence I may consider that its adoption will render great services to chemists, when called on to make researches of the kind under consideration.

It may be objected to this method, as to many others in which hydrochloric acid has been used, that this acid may contain arsenic. There is but one answer to this objection, viz., that as hydro-chloric acid can be obtained free from arsenic, such must be procured, and alone employed. Sulphuric acid, also, often contains a greater or less quantity of this metal; that only which is free from it, is to be used.

London Journal of Medicine, March, 1849, *p.* 292.

139.—*On the Use of Iodide of Potassium in Chronic Lead-Poisoning.*—By M. Melsens.—The treatment proposed by MM. Melsens and Natalis Guillott rests on this principle: to render soluble the metallic compounds which the system would retain, by associating them with a body which the system most readily eliminates. This point of view has already been realized: first, by means of the property possessed by all the insoluble compounds formed by salts of mercury and the substances which are met with in the system, to become soluble in iodide of potassium; secondly, relying upon the facility and rapidity with which the system eliminates the iodide of potassium, it has been admitted by analogy that the compounds of lead retained by the system would most probably be dissolved and eliminated by iodide of potassium.

In the present communication, M. Melsens mentions several well-authenticated cases of recovery from poisoning by preparations of lead. All the patients treated with iodide of potassium were cured.

M. Melsens shows clearly that neither sulphuric acid nor the sulphates can be considered as remedial agents in chronic diseases arising from handling preparations of lead, whilst the sulphate of lead is a poison sufficiently virulent to destroy animals in a few weeks. Dogs never resist its action longer than one month, and some die in a few days. When sulphate of lead and iodide of potassium are conjointly administered to a dog, no morbid effect is produced within the time necessary to kill a dog to which the sulphate alone was administered.

M. Melsens says that, if a very strong dose of iodide of potassium be administered in the first case to a dog suffering from disease arising from the administration of the sulphate, carbonate, or iodide of lead, he quickly dies; but that if, on the contrary, we commence by giving small quantities of iodide of potassium at a time, and gradually increase the dose, the animal is cured in a very short time. The doses of iodide of potassium which kill a dog labouring under the effects of lead, produce no action on a healthy dog. M. Melsens also relates several cases of complete cure which he obtained by following the same plan of treatment with persons affected with tremor from working on mercurial preparations. One of these was completely cured without ever discontinuing his regular work. The mercury came away in the urine, and was found in the state of the iodide: it was impossible to find any trace of the mercury in the urine of the patient after his recovery.

The result of the facts established in this communication is that, by means of the treatment with iodide of potassium, the cure of chronic poisoning by lead or mercury is not obtained until after acute poisoning has first taken place, which acute stage the medical man is fully able to direct, according to the strength of his patient, but which ought to be an object of the most scrupulous attention on his part. The experiments also prove that, although certain medicinal preparations have an action of their own, yet they also act through the medium of substances which they find in the animal economy.

[We do not find that iodide of potassium exerts any well-marked solvent action on iodide of lead, although it very readily dissolves the iodide of mercury. It would have been more satisfactory if, before assigning the recovery of these cases to this solvent action of iodide of potassium, the experimentalist had distinctly proved that lead was thus carried out by the secretions more rapidly than when the iodide was not exhibited. Until this has been shown, the conclusion respecting the curative properties of this salt is not warranted by the facts. It has been recently tried in some well-marked cases, and has signally failed.—Ed. Med. Gaz.]

Medical Gazette, Feb. 23, 1849, *p.* 344.

140.—*Cases of Poisoning with Chloride of Zinc.*—Dr. Thos. Stratton, R.N., relates in the Edinburgh Medical and Surgical Journal, for October 1848, two cases of poisoning with chloride of zinc. In both cases, a wine-glassful of a solution was swallowed, containing

in one case, about twelve grains of the salt, and in the other, about two hundred grains. In the latter case, burning pain in the gullet, burning and griping pain in the stomach, great nausea, and sense of coldness, were instantly felt. Vomiting followed in a few minutes. Dr. Stratton saw this patient twenty minutes after the accident, and instantly made a strong solution of home-made brownish soap, of which he made the patient swallow, at intervals, three or four pints. Afterwards, olive oil was given, and the patient recovered. The other case was not seen by any medical man; but it also terminated favourably. Dr. Stratton suggests either soap, or carbonate of soda or of potash, as antidotes to chloride of zinc, and supports his suggestion by the recital of experiments which he has performed.

London Journal of Medicine, March, 1849, *p.* 294.

141.—*Case of Poisoning by Yew-Berries.*—By Dr. James Taylor, Castle Cary.—[As cases of poisoning by the berries of the yew, (taxus baccata) are rare, and as some writers have denied the poisonous nature of the tree altogether, the following case becomes interesting.]

October 28th, 1838. Mary Baker, a fine healthy child, between five and six years of age, ate freely of yew berries just before going into church. About an hour after, during divine service, she fell from her seat and was instantly removed, in an insensible state, to her home. I saw her immediately; the surface of the body was cold; the countenance pale; breathing laborious and frequent; pupils very dilated; pulse feeble; convulsions, and vomiting. Having carefully examined the head, and finding it was not injured by the fall, I gave an emetic, and from what was ejected, it was evident she had eaten a considerable quantity of the berries; not the mucous part only, but the seeds, wherein I believe is the most active principle of the berry, for the mucous or fleshy part of the berry has been frequently eaten with impunity. As soon as it appeared the stomach had been freed of its contents, a purgative was given, and had the desired effect, but the child never rallied from the first. She continued in a comatose state, and died in *four hours* after eating the berries. An inquest was held, but no *post-mortem* examination allowed. I stated, in my evidence, I considered yew berries poisonous, and that the child's death had been occasioned by them, but I remember several of the jury were very sceptical on the point.

Provincial Journal, Dec. 27, 1848, *p.* 708.

142.—*Case of Poisoning by Opium, treated by Electro-Magnetism.*—By Dr. Lancaster.—[A woman was admitted into University College Hospital, labouring under the symptoms of poisoning by opium. After the use of the stomach pump, and the injection of coffee and ammonia into the stomach, the remedies employed were, first, cold affusion, then the hot bath, and afterwards a slight bleed-

ing; the use of the coffee and ammonia being continued in the interval. The symptoms improved for a short time after each change of treatment, but ultimately the coma increased, and the breathing became more laborious.]

Under these circumstances (says Dr. Lankester), the electro-magnetic battery was employed, and currents of electricity were passed through the shoulders, chest, abdomen and anus, and legs. Under this treatment the symptoms improved; the pulse became perceptible at the wrist; the tendency to drowsiness continued to a greater or less extent till ten P.M., but was effectually prevented by passing a weak electric current through both arms. When recovered, she stated, that at about five o'clock the previous evening she had taken a shilling's worth (about two ounces) of laudanum. She had therefore been eighteen hours under the influence of the poison before any treatment was commenced. She was discharged from the hospital, but was subsequently re-admitted, with gangrene of the lungs, of which she eventually died. The post-mortem examination revealed a tuberculous condition of the left lung, and a large cavity, produced by gangrene, in the right lung. The author drew attention to the following points:—1. The condition which the patient was in when brought to the hospital. The symptoms were of such a nature, that all who saw her despaired of affording any relief, and only a sense of duty prompted me to make an effort for the rescue of the patient. 2. The benefit experienced in the use of cold affusion in this case would warrant its application in similar cases, or wherever the same combination of symptoms was present. 3. From the effect of the ammonia and the turpentine enema in this case, it may be inferred that such stimulants are amongst the remedies in cases of poisoning by opium which should not be had recourse to but under the most urgent circumstances. The condition of the nervous system is very different in coma from narcotic poisons, and coma from mere congestion. 4. The reaction which was observed at two o'clock, and attended with more decided symptoms of narcotism, may, perhaps, serve to explain the cause of death in cases where persons have apparently recovered from the effects of narcotic poisoning, and afterwards again sunk. 5. The evident advantages of using the electro-magnetic apparatus as a means of arousing the sensorium in cases of poisoning by opium, especially when, as in the present case, other means cannot be well employed. 6. The tuberculous condition of the lungs may raise the question as to whether this was the result of the depression brought about by the poisoning, or whether, rather, this condition was not present when the poison was taken, and contributed to that congestion of the lungs which was so remarkable a feature of the case, and brought on the gangrenous condition of these organs, of which the woman died. 7. The non-contracted condition of the pupils, and the want of opium smell in the contents of the stomach, are points worthy of notice in this case.

Medical Gazette, Dec. 22, 1848, *p.* 1080.

143.—*On the Presence of Uric Acid in the Kidneys, as a Sign of a Child having been born alive.*.—By Dr. Virchow.—Dr. Virchow, in the Transactions of the Berlin Obstetrical Society, has proposed a sign, to ascertain whether a child has been born alive; or rather, whether it has lived more than two days. The test is to be found in *the absence or presence of uric acid in the kidneys.*

Dr. Virchow wishes to show that the presence of uric acid in the kidney (at once to be detected by the naked eye), is a conclusive proof that the child found dead has been born alive. The ancient anatomists remarked a red or yellowish substance coating the mammillæ of the kidneys of infants, and which modern science has found to be uric acid, and analogous to the calculi sometimes found in the bladder of children. Schlosseberger treats of it under the name of "Infractum acidi urici"; and it is easily discovered by making a transverse section of the kidney, when a considerable number of yellowish-brown, and sometimes light yellow, rays of this substance, are seen ramifying from the tubular, and sometimes from the cortical substance, to the mammillæ. Under the microscope, we make out sometimes solid cylindrical particles, of a yellowish-brown colour, though more frequently these cylinders seem to be not yet formed, or to be broken up into molecules of a darker colour, round or angular, and not unlike the crystals of urate of ammonia. A greater quantity is obtained by pressure. The conclusions of Dr. Virchow, are:—

1. That the deposit is never found in children who have been born dead, or who have died within forty-eight hours after birth.

2. That the deposit is not found, or does not occur, until about forty-eight hours after birth.

3. That the deposit is not generally found later than the twentieth day after birth.

There are, however, exceptions to these rules; for the deposit was, in one case, found on the twenty-ninth day after birth; and Dr. Virchow had not found it in an infant dead on the tenth day; nor in another on the thirteenth; nor in a third on the sixth day; These, however, may be the consequence of disease. The subject is now left in the hands of British observers, who, I trust, will soon determine the value of Dr. Virchow's views.—[Abridged from Dr. Bushman, in Medical Times for January 20, 1849.]

London Journal of Medicine, Feb. 1849, *p.* 205.

MIDWIFERY

AND

THE DISEASES OF FEMALES.

144.—ON THE PHYSIOLOGY OF PARTURITION.

By Dr. W. Tyler Smith, Lecturer on Obstetrics in the Hunterian School of Medicine.

[On physiological grounds Dr. Smith would divide the process of labour into five stages, as follows:]

1. The Preliminary Stage, in which the preparations for actual labour are made.

2. The stage of Dilatation, in which the os uteri is dilated for the passage of the presenting part of the fœtus.

3. The Stage of Propulsion, in which the fœtus is propelled through the os uteri and the vagina.

4. The stage of Expulsion, in which the fœtus is expelled through the external parts.

5. The Supplemental stage, in which the placenta is expelled, and the uterus returned to a state of permanent contraction, and at length, of rest.

Thus it will be seen, from Dr. Smith's arrangement, that actual labour itself consists of three physiological stages, namely, Dilatation, Propulsion, and Exclusion; the Preliminary and Supplemental stages are but accessory to these.

In the *Preliminary* stage there is little or no pain, the uterus decends somewhat, a permanent contraction of the organ takes place, rendering it more distinctly firm and ovoid than before, and the abdomen becomes quiet, from the cessation of the peristaltic actions of the uterus. There is an irritable state of the rectum and bladder, leading to the frequent evacuation of the contents of these viscera. The effect of this irritability of the bladder and rectum is to free the pelvis and lower part of the abdomen from all unnecessary incumbrance, and so to give room to the parturient canal.

In this stage of labour, *the ovarian nerves* are the only excitors which are in action. The ovarian nerves, acting in the manner already indicated, produce the utero-spinal excitement upon which the contraction of the uterus depends. The ovarian excitement is the *first* in the order of events, the *spinal excitability* and the action of the uterine motor nerves follow. The equable uterine contraction, produced by the ovarian excitation, impels the presentation

against the os uteri, and the mechanical excitation of the nerves of the os uteri, thus occasioned, gradually induces the actions of the next stage.

In the stage of *dilatation*, sensation, secretion, and motor action are all involved; these are distinct pains, the flow of blood and mucus, and the proper motor actions of the uterus. The uterine contraction becomes intermittent instead of continuous. Each pain is attended by contractile efforts of the fundus and body of the uterus, and by dilatation of the os uteri. Dr. Smith discusses the nature of dilatation very fully, proving it to be an active dilatation of a reflex kind. When the body of the uterus contracts, the tendency of the os uteri is to dilate. This dilatation of the os uteri, in parturition, is compared to the dilatation of the cardia when the œsophagus contracts in swallowing; to the dilatation of the sphincter ani when the rectum contracts; or to the dilatation of the sphincter vesicæ, which attends contraction of the distended bladder. The only difference is one of time, and the os uteri dilates slowly, because of its peculiar anatomical character. Hitherto this subject has been very ill understood, though it is of great practical import. Attention is next called to the direction in which the motor force of the uterus is exerted, in this stage of labour. It is exerted downwards and backwards, in the direction of the triple axis of the child, the uterus, and the inlet of the pelvis. This is exactly the direction in which the fœtus is required to advance during this stage. Up to this point, the lower medulla only has been engaged in the reflex motor actions; but when the dilatation is complete, sickness or vomiting often occurs, and these prove that the medulla oblongata is now involved in the process. The dilatation of the cardia in sickness or vomiting reacts favourably on the os uteri and vagina; and if vomiting take place, it is beneficial, by giving room, and increasing the freedom of the respiratory actions of the succeeding stage of labour. The next point referred to, is the rigor which is generally observed at the conclusion of this stage, of which an excellent reflex explanation is given. Some highly original observations are made upon the evacuation of the liquor amnii, which now takes place. The preservation of the membranes entire, up to this period, is important, not only because it ensures fluid instead of solid pressure in the dilatation of the os uteri, but because the fluid pressure stimulates the excitor nerves less powerfully than the solid pressure of the subsequent stages. On the other hand, the rupture of the membranes, and the evacuation of the liquor amnii, at this point, not only provides more powerful mechanical excitation for the next stage, but, by diminishing the bulk of the uterus, gives greater facility for the action of the abdominal muscles. The perfect adaptation of even the slightest events in natural parturition, in this and a thousand other instances, is indeed most admirable.

In this stage of labour, *the ovarian nerves* are acting as excitors, as before, and *the nerves of the os and cervix uteri* come into play as

additional excitors of the reflex actions. The only motor nerves involved, up to the point at which nausea or vomiting occurs, are *the motor nerves of the uterus*, and the uterus is the only muscle in action. The head, or presenting part, of the child, and the amniotic bag, are the mechanical excitors of the uterine nerves.

In the stage of *Propulsion*, the uterine contractions are much more powerful than in the previous stages, and strong expiratory efforts accompany each pain. The more powerful efforts of the uterus depend on the circumstance that the fœtus is now brought into direct contact with the internal surface of the organ, in consequence of the discharge of the amniotic fluid. The expiratory efforts are excited, from the irritation of the vaginal excitor-nerves, by the advancing head of the fœtus. Dr. Smith minutely analyzes the various muscular actions which are now in operation; but for this we can only refer to the work itself. We quote, however, a few words which illustrate the beautiful manner in which volition and emotion tend to prevent laceration in the powerful pains of this stage:—

"When the pain can no longer be borne, the short gasp or groan is exchanged for a cry which dilates the glottis, and the pain and contractions subside. The cry is a motor action, excited by the emotion of pain, and instantly relieves the uterus of all extra-uterine pressure. Thus the glottis may be compared to a safety-valve, which is thrown open by emotion whenever the pressure becomes more than can be borne with safety. By the influence of volition we have this valve entirely under our control, to open or to close it, as may be necessary. When the expiratory actions are weak, we can enjoin the patient to hold her breath, and when they are too intense, or too long-continued, we can encourage her to cry out, which is of course equivalent to dilating the glottis, and expiring the contents of the thorax."

In this stage, the motor force of parturition is applied in quite a new direction. The direction in which the fœtus has now to pass, is that of the axis of the outlet of the pelvis, or downwards and forwards. The direction is given by the contractions of the abdominal muscles, which urge the fundus uteri against the vertebral column. It is remarkable also, that the long axis of the head, the advancing part, corresponds very closely with this new parturient and axis.

The excitor spinal nerves acting in this stage, are *the ovarian, the uterine, and the vaginal nerves.* These are now in relation both with the medulla oblongata, as the centre of the respiratory arcs, and with the medulla spinalis inferior, as the centre of the utero-spinal excitor and motor nerves. The motor nerves which are excited to action, are *the uterine nerves*, and the whole class of *respiratory motor nerves.*

In the stage of *Expulsion*, the actions of the previous stage are continued, but a new series of actions come into operation as the head of the child passes the ostium vaginæ. We quote a description of these actions, which it would be difficult to condense:—

"The perinæum, after being distended to the utmost, is now retracted over the head by the action of the levatores ani; the sphincter ani and sphincter vesicæ dilate suddenly, the vagina contracts upon the advancing mass, and the head glides rapidly into the world. The dilatation of the two sphincters, between which the vagina is placed, compensates admirably for the absence of a perfect sphincteric muscle at the outlet of the parturient canal. The effect of this double dilatation is, that at the precise moment when there is the most imminent danger of laceration, there is a sudden and considerable removal of tension from the parts endangered. The dilatation of the sphincters is partly dependent on the sensation and emotion of severe pain, and partly on the reflex dilatation peculiar to the sphincteric muscles. This view of the subject gives interest and importance to an action which has never been looked upon but as a very disagreeable *contretemps*. Physiology here, as in many other instances, transmutes the meanest actions of the economy, rendering them noble by virtue of their uses! At the same moment that the orifices of the rectum and bladder are thrown widely open, there is generally a dilatation of the glottis. Even from women who restrain the expression of their emotions during the rest of labour, a cry of pain escapes at this juncture; this cry is necessarily accompanied by an open state of the glottis. The opening of the glottis is not at all accidental or voluntary, but is as regular and involuntary as its closure during the propulsive pains. Its effect is suddenly to take away the expiratory pressure from the expulsive action. Without this combined action of the glottis, and the sphincters of the rectum and bladder, for the defence of the ostium vaginæ, recto-vaginal laceration must be a very common accident of parturition. Such would inevitably be the frequent result of closure of the abdominal and thoracic cavities at all points, except that at the point of exit for the fœtus, in the final throes of labour."

The excitor nerves involved in this stage, are *the ovarian, uterine, and vaginal nerves, and the nerves of the ostium vaginæ;* the upper and lower medulla are implicated; and the motor nerves in action include the *uterine, vaginal, and respiratory nerves, and the nerves of the rectal and vesical sphincters.*

In the *Supplemental* stage the objects to be attained are, the expulsion of the placenta, and the contraction of the uterus so as to avert hemorrhage. The uterus contracts intensely, from the great irritation supplied by the fœtus in passing the perinæum; it is afterwards excited by the placenta; on the separation of the placenta, the wound-like surface from which it has been detached becomes strongly excitor. But new excitors are brought into play at this juncture: the breasts excite the uterus powerfully whenever the child is applied, and every thing taken in the stomach produces uterine contraction. The uterine contraction is also aided by the maternal emotions.

The excitor nerves involved in this stage are *the ovarian, uterine, vaginal, mammary, and gastric nerves;* the motor actions are chiefly

confined to the uterus, and the chief motors are the *uterine nerves.* We quote, as an addendum to our sketch of Dr. Smith's account of parturition, his own summing up of the several parturient motor actions; than which nothing can be more graphic; or, we believe, more correct:—

"We can now review the order of the nervi-motor actions of labour, the series of excitor surfaces involved one after the other, and the regular succession of stimulus and contraction in the different stages of the process. First in the order of events, there is the excitation of the ovarian nerves, followed by the equable and continuous contractions of the uterus. Then there is the pressure exerted by the fœtal head, as yet defended by the liquor amnii, upon the os uteri, and the consequent excitement of the orificial nerves, with the answering and intermittent contractions of the uterus. In the next place, the vaginal excitor nerves are irritated by the pressure of the now advancing and undefended head, or presenting part of the fœtus, an irritation which calls forth the respiratory actions of labour in addition to the uterine contractions. Then we have the excitation of the nerves of the ostium vaginæ, and the remarkable modifications of motor action thus produced. After the expulsion of the fœtus, the placenta remains to supply an intra-uterine stimulus, sufficient to affect the now exalted excitability of the uterine nerves, and thus to cause its expulsion. When the placenta has been expelled, the excitation of the uterine surface, from which the placenta has been separated, the excitation of the mammary nerves by suckling, and by the secretion of milk, and the excitation of the pneumogastric, now in excito-motor relation with the uterus every time food or drink are taken, are, with the aid of emotion, and the continuing ovarian irritation which has been present during the whole of labour, perfectly sufficient in normal cases to prevent hemorrhage, and gradually to effect the return of the uterus to the contracted and comparatively small size of the unimpregnated woman who has borne children."

London Journal of Medicine, May, 1849, *p.* 472.

145.—*On the Vagina considered as a Parturient Organ.*—By Dr. W. Tyler Smith.—The chief outlets of the mucous cavities, except the vagina, are guarded at the orifices by sphincters. The constrictor vaginæ, at the entrance of this canal, represents the sphincters found in other situations. It is a thin, small muscle, not perfectly orbicular. A perfect sphincter in such a situation would indeed be out of place, owing to the immense dilatation required of the vagina in childbirth. An ordinary sphincter, if it existed, must far exceed the sphincter ani in size. When labour comes to be treated of, it will be seen how a sphincteric muscle in this situation is compensated for, and how well the actual arrangement contributes to the safe expulsion of the fœtus. The cellulo-fibrous sheath immediately surrounding the mucous membrane of the vagina is an extension of the fibrous tissue of the uterus itself. I have already said that the os uteri is formed, like the pylorus, by a

re-duplication of the mucous and contractile tunics, only this mode of formation is more exaggerated in the os uteri than in the gastric sphincter. In labour, the process of dilatation causes the almost entire obliteration of the os uteri, and the uterus and vagina become, as it were, one uninterrupted canal. The vagina, and particularly the upper portion, enlarges in size during the latter months of pregnancy. A real growth of the fibrous or muscular sheath, similar to the growth of the muscular tissue of the uterus, with which it is continuous, takes place, though in a less degree. We know that during the early months there is some contraction, but in the later months an enlargement, and even protrusion, of the vagina; and during labour, not only is the diameter increased, but the length of the vaginal canal becomes greater. This could hardly exist, without an actual increase of size.

Ibid, *p.* 466.

146.—*On Rigidity of the Os Uteri.*—By Dr. W. Tyler Smith.—[Dr. Smith describes the opening of the os uteri during parturition as depending, "partly, upon the mechanical distention of the non-contractile tissue, and partly upon the muscular dilatation of the contractile fibres which enter into the composition of the os and cervix uteri." And applying this fact to the explanation of rigidity of the os uteri, he shows that the latter consists either in the absence of distensibility, or of dilatability, or in both of these states combined. He remarks:]

During the premonitory and succeeding stage of labour, particularly with a first child, and still more when a first labour occurs late in life, the distensile element is frequently hard and unyielding. In multipara also, where contusion or injury has occurred in former labours, or when the os and cervix have been the seat of disease in the unimpregnated state, this form of rigidity is very common. It also occurs in cases in which the os uteri is heated, irritable, or inflamed, and where it is consequently not lubricated by the customary secretion. This form of rigidity is precisely similar to rigidity of the perinæum.

The other form of rigidity occurs in cases where the causes of acute labour or of excessive uterine action are in operation. Instead of the kindly physiological dilatation of the os uteri during the contractions of the body and fundus, the os uteri contracts with the rest of the organ, thus reversing its proper function. The contraction continues also, or the part remains rigid, in the intervals between the pains. Any irritation of the os uteri, whether by the head of the fœtus when brought to bear against it during a pain, or by the finger of the accoucheur, causes it to contract still more firmly. It is in this form of sphincteric rigidity that rupture of the uterus is to be especially dreaded.

In numerous cases, both the muscular and mechanical forms of rigidity exist, and mechanical rigidity is itself sometimes a cause of spasmodic closure of the os uteri. The heat and irritability of the os uteri render it morbidly excitable, and the presence of the

liquor amnii, or the presentation, instead of exciting a reflex dilatation of the mouth of the uterus, excites it to spasmodic contraction. As I have before observed, this state may be considered as a tenesmus uteri, and is analogous to the tenesmus affecting the bladder and rectum, in certain of their disordered conditions.

The treatment of rigidity of the os uteri must have reference to its twofold nature, and must be modified according as the rigidity is chiefly mechanical or sphincteric in its nature.

Time and patience, waiting for the result of the uterine actions, and avoiding all uterine excitation, are generally sufficient to overcome the ordinary cases of rigidity, especially if the liquor amnii has not been evacuated. At every pain there is a physiological attempt to dilate the os uteri, and this at length succeeds in most cases, except in those in which the os uteri is diseased.

In plethoric cases, bleeding is often of great use; it tends powerfully to lessen the mechanical rigidity, and to promote the yielding of the sphincteric contraction. Bleeding from the arm is generally practised, but I have no doubt that in some cases not admitting of general depletion, and irreducible by other means, the application of leeches to the os uteri would prove of great service. Leeches are now so frequently applied through the speculum to the os uteri, for disorder of the unimpregnated uterus, that there could be no objection to their use during parturition. Nauseating doses of antimony, or ipecacuanha, are important remedies in rigidity of the os uteri; they act, in the first place, by diminishing the mechanical rigidity, on the same principle as they act in strangulated hernia; and in the next, they promote the muscular dilatation of the uterine mouth, by producing nausea, and thus bringing the reflex relation between the uterus and the stomach into play. The reflex relation which exists between the cardia and the os uteri, which I have so often referred to, is most valuable as a therapeutic agent. Warm enemata are also useful in rigidity; they act upon the uterus as a local fomentation, and they excite another salutary reflex action—namely, that which exists between the sphincter ani and the os uteri. The dilatation of the sphincter ani, and even of the sphincter vesicæ, exerts a sensible influence upon the os uteri, when its closure is simply or chiefly sphincteric. A warm bath, or a hip bath, or warm fomentations, tend to relax both contractile and mechanical rigidity. In those cases of closure of the uterus, arising from insuperable rigidity of the non-contractile tissue, the ultimate remedy is incision of the os uteri, at the most rigid portion of the ring it presents. In cases in which rigidity is irreducible by ordinary means, and consists of sphincteric or spasmodic contraction, the os uteri may be sometimes dilated mechanically by the fingers, or if this should be impossible, or if danger should be apprehended, incision into the os uteri is necessary here also. But in all kinds of manipulation at the os uteri, the utmost caution ought to be observed, lest rupture of the uterus, or convulsion, should be excited by the means taken to avoid a lesser difficulty.

Lancet, Nov. 25, 1848, p. 574.

147.—*On the Treatment of Rigidity of the Os Uteri.*—By Dr. Scanzoni.—Dr. Scanzoni, who has carefully examined the conditions of the os and cervix, in the latter months of pregnancy, believes that the constriction, which sometimes declares itself in the first stage of labour, is due to rigidity of the upper orifice of the uterine neck, and not the lower, which is generally sufficiently dilatable. Instead of the treatment usually recommended, viz., bleeding, antimony, belladonna, frictions, &c., he advises a continuous douche of warm water upon the os and cervix, directed by means of an appropriate instrument.—*Union Méd.* and *Rev. Méd. Chir.*, Dec., 1848.

Provincial Medical and Surgical Journal, March 21, 1849, *p.* 165.

[On the subject of *artificial dilatation of the os uteri*, Dr. Lawrence, of Montrose, observes:]

I would advert to two points of practice, of which my experience is decidedly in favour, although I cannot offer any statistics regarding them. The first is gentle dilatation of the os uteri with the finger, when the pains are at all inefficient. That uterine action is often rendered much more brisk and effective in this manner, I entertain not the smallest doubt; while, on the other hand, I have never experienced anything unfavourable to result from it. Query—Does the oxytoxic effect depend upon a reflex action being excited by the pressure of the finger, or upon the os uteri being placed in a more favourable position for being acted on by the longitudinal fibres of the body of the organ, when the os is pushed a little forward—just as the eye, when it has been deeply inverted by the internal rectus cannot be advantageously acted on by the external rectus, until it is first brought forward by the inferior oblique?

The second point of practice referred to, is the method adopted to secure timely expulsion of the placenta. Besides directing pressure to be made over the uterus after the birth of the child, I invariably lay hold of the cord, and, without pulling, *retain it in a state of tension.* This seems to have the effect of exciting the uterus to speedy contraction; and to this practice, I attribute the fact of the placenta being expelled in all my cases within ten or fifteen minutes, in the majority within five minutes, after the birth of the child. While it cannot explain the fact of my fortunately having met with no cases of retained placenta from adhesion, I think I am warranted to ascribe to this method of procedure the fact of my having met with no cases of placental retention from inertia, or irregular contraction of the uterus.

I may also state what may seem almost too petty to mention, that I never use tape for tying the funis before the separation of the child, but always *strong sewing thread.* I was led to this from having got some serious frights at the outset of practice by the slipping of the tape, and the alarming, and to the child almost fatal hemorrhage which ensued. I have known the same casualty to occur in the practice of others, from the same cause.

Monthly Journal, Feb., 1849, *p.* 556.

148.—*On the Muscularity of the Os Uteri.*—By Dr. W. Tyler Smith.—Owing to the mixed mechanical and muscular dilatation of the os uteri, it generally opens slowly; cases, however, occur in which, after long-continued rigidity, it dilates so suddenly, that even from this fact alone it is difficult to consider it a mere mechanical distention, the resiliency of the part effecting its subsequent contraction. But the strongest physiological proof of the existence of muscular power in the os and cervix uteri, is the forcible contraction which sometimes occurs after full dilatation—as, for instance, in cases of encysted placenta, in which the fingers can only be introduced with the greatest difficulty; and again, in inversio uteri, where the speedy and powerful contraction of the cervix is one of the elements of the accidents most opposed to the re-position of the organ.

London Journal of Medicine, May, 1849, *p.* 465.

149.—*Case of Malignant Tumour of the Os Uteri excised during Labour.*—By J. M. Arnott, Esq., Surgeon to the Middlesex Hospital, &c.—[Mr. Arnott adduces the following case to show that the practice of excision, which is not much approved of in this country, may sometimes be both practicable and safe. The patient was a woman thirty-eight years of age, and at about the fifth month of pregnancy when first seen by Mr. Arnott. It was then decided to do nothing until the labour came on. When the period arrived, Mr. Arnott tells us,]

On examination I found the anterior lip and right side of the os uteri occupied by a hard rugged tumour of oval form, and of the size of a large green walnut. Its limits were clearly defined, and the tissue beyond, and as far as could be ascertained around, seemed to be in a natural state. The posterior lip of the uterus was soft and thin, and the os admitted two fingers, but beyond this it had not yielded for many hours.

During a pain the tumour and contracted os uteri were forced down by the child's head, nearly but not quite within sight.

Assenting to the view of the case taken by Dr. Locock, I proceeded to fix the hooks of a pair of Lisfranc's forceps into the morbid growth, and upon this traction was made by Dr. Locock. I had proposed effecting excision by a curved hernia bistourie; but found I could not get the parts sufficiently low to allow of this being applied. I therefore resorted to the scissors curved on the blades, and guiding and guarding the points by the fingers of the left hand, I succeeded (by a succession of strokes, and cutting freely beyond it) in removing the tumour.

I had some fear of hemorrhage but not a tablespoonful of blood was lost.

Immediately after the operation the os uteri expanded so uniformly that you could scarcely distinguish the wounded surface from the rest. In a quarter of an hour a living healthy child was born. The lady had a good recovery; and at the end of the month, everything had a favourable appearance.

The tumour measured two inches and a half in length (in the direction of the circumference of the os uteri), one inch and a half from above downwards, one inch and a half in thickness. It had a knobbed character, and over one of the projections ulceration of the mucous membrane to the size of a shilling existed. The substance of the tumour, on a section being made, presented a yellow colour and fibrous appearance, not circumscribed by a defined margin, not nucleated, but gradually lost in the surrounding tissue.

In it, under the microscope, Mr. Tomes could not detect any appearances corresponding to those met with in scirrhus and cancer; but at one part of this fibrous mass near the ulcerated surface, and where it was of a greyish colour, and about apparently to undergo some change, Mr. Tomes discovered a few, a very few, cells of suspicious character.

The subject of the above case remained well for some months, when she was again subjected to attacks of hemorrhage. On one of these occasions, eight months after her confinement, in the absence of her usual attendant, and when the quantity and effects of the hemorrhage were somewhat alarming, I saw her, and found that, whilst the part from whence I had removed the tumour remained sound, the posterior lip of the os uteri was the seat of a similar disease, which extended upwards on the cervix beyond reach. The patient lived till June 1846, sixteen months after her confinement, when she died, having had, I understood, all the symptoms of malignant disease of the womb. An examination of the body was not allowed.

[In such cases as the following, however, the operation is certainly inapplicable. The patient was forty-one years old:]

On examination, the vaginal portion of the uterus was found to be enlarged, indurated, gristly. The anterior lip was of greatest size, but nearly the whole circumference had a rugged irregular character. The os was open; on the interior surface of both lips there was ulceration. The breach of surface on the posterior lip was excavated, as if by a knife. The diseased changes extended upwards, on the cervix, beyond the reach of the finger. The uterus was fixed in the pelvis.

[This patient was also at the fifth month of pregnancy. Premature labour came on about a fortnight afterwards, on the night of the 12th November. Dr. West attended the patient. After narrating the history of the labour, up to the morning of the 14th, he says:]

A few minutes after two, I returned into the room, a most violent pain came on, a sound as of something giving way was heard, and a dead male child, at near the sixth month, was born double, the right arm and side of the chest being almost black from the squeezing they had undergone.

Immediately above were felt the membranes of another fœtus, which gave way in less than five minutes, and a female fœtus was born footling. It made a few attempts to breathe.

The placentæ were felt within the os, and slight traction by the cords removed them.

The os uteri was now about three inches in diameter; no rent could be felt in it.

On the evening of November 15th some uterine pain came on, and the pulse rose to above 120; it soon sunk after a few leeches, to 106, where it had been before labour, and there has since been no grave symptom.

In cases similar to this, (says Mr. Arnott), where the cervix is involved, when sufficient time has elapsed to enable us to ascertain what nature can accomplish, and that delivery can no longer be delayed with safety, incisions offer the first and best means of relief. When, however, the malignant growth occupies a portion only, the half, of the os uteri, then the possibility of excision should be kept in mind. That this may be done during labour, with safety, the case which I have related sufficiently proves.

[This patient lived nearly six months after her labour, but she was confined to her bed and had severe suffering. When she died, extensive uterine disease was found.]

Medico-Chirurgical Transactions, 1848, *p.* 37.

150.—ON LACERATIONS OF THE CERVIX UTERI.

By Dr. E. W. Murphy, Professor of Midwifery at University College.

Lacerations of the os uteri have been very little noticed, although my impression is that they are almost as frequent as lacerations of the perineum. They are not viewed as ruptures of the uterus, because the injury is not attended by the same fatal consequences as when the peritoneum is torn: the rent in the mouth of the womb heals with as little constitutional disturbance as that in the perineum, and therefore does not attract attention. The frequency of this accident may, however, be estimated by the traces that are left behind in the cervix, when the uterus becomes subsequently the seat of disease. Having had occasion, I might say constantly, to examine the os and cervix uteri, both by touch and with the speculum, long after delivery, in consequence of some symptoms of disease, deep fissures in the cervix, accompanied by a considerable degree of surrounding induration, attended with ulceration, gave abundant evidence of previous mischief: if inquiry were made into the history of her labours, the patient always gave a florid account of their severity, "the child obliged to be taken away by instruments," &c. Dr. Lever has directed the attention of the profession to these lesions as being the result of protracted labours: he says, "When the waters pass off early, and when the os uteri is thin and tense, such a lesion is by no means unusual; I have on many occasions pointed it out to the students in the hospital who have filled the office of obstetrical clinical clerk." These fissures, attended as

they often are by great and irregular induration, as well as very troublesome ulceration, should be borne in mind if we would form a just estimate of the consequences of difficult labours, and especially of the imprudent application of instruments.

Separation of the cervix has sometimes taken place: the whole disc of the vaginal portion of the cervix has been detached and expelled with the head. Mr. N. P. Scott, of Norwich, relates the first case of this kind. The os uteri was rigid and contracted: it did not yield to the prolonged efforts of the uterus, and was at length torn off.

A similar case occurred in the practice of Mr. Hugh Carmichael, of Dublin:—A young unmarried female was pregnant of her first child: the waters were discharged in the commencement of her labour, when the os uteri was only sufficiently dilated to admit the point of the finger, being thin and hard. Her pains were slight, and she continued in this state for the better part of two days: the dilatation was then advanced to the size of a crown piece, beyond which it did not extend, its edges still continuing "hard and rimmy." Considering that the obstinacy which the os exhibited might probably result from insufficiency of the pains, Mr. Carmichael gave her three small doses of ergot of rye (five grains each) without effect: the os did not yield, but the head was propelled fully into the pelvis, pushing the cervix before it (there was no deformity of the pelvis). The woman was exhausted; she became delirious; the pulse quick and irregular: "in a word, she must have quickly sunk if interference had not been resorted to." While being delivered by the crotchet, "a strong contraction of the uterus succeeded, when the head was at once expelled, carrying before it the os and a part of the cervix of the womb, the diameter of which measured about three and a half inches." Two hours after delivery, jactitation, restlessness, and difficulty of breathing, took place: a full anodyne was given that procured rest. "On my visit the next morning," continues Mr. Carmichael, "(and I confess to you that it was not without strong apprehensions that I should have found her either dead or dying), to my surprise she was sitting up in bed eating her breakfast, expressing how comfortable her condition was with that of the preceding day." She recovered without a single bad symptom, and in the usual time.

Dr. E. Kennedy met with two cases of this kind in the Dublin Lying-in-Hospital. In one, the woman was confined of her sixth child, and only seven hours in labour. Ten hours after delivery about two-thirds of the cervix was found to protrude from the vulva, which was twisted off. The other was a protracted case: the os was greatly congested, and while attempts were made to support the anterior lip from too much pressure, the posterior portion gave way. Dr. Kennedy removed the remainder. Both these patients recovered; the latter after a tedious convalescence. Dr. Lever relates, also, two cases. The first patient was in labour from Tuesday to Thursday afternoon, the os uteri resisting all the efforts of the uterus to dilate it, although aided by depletion, tartar

emetic, and the local application of belladonna, which Mr. Day (the gentleman in attendance) "smeared on the os and cervix without any visible effect." During a violent pain the os was expelled, having a very fœtid odour. Dr. Lever says, "the vaginal discharge was horribly fœtid; the anus was patent, and fluid fæculent matter was running out: the perinæum was of a dark red colour, swollen and œdematous. On examination, the head was found resting on the perineum, and the fourchette had commenced to lacerate." The child was delivered by the crotchet "without greatly increasing the laceration that occurred." This woman died afterwards of puerperal arthritis.

The second is a very interesting case, which occurred in the practice of Mr. Evans. Labour commenced on Tuesday morning. at three o'clock, and continued until Thursday two o'clock P.M. without producing any effect on the os uteri. Depletion, purgatives, local fomentations, anodynes, and tartar emetic, had been used without effect: the os was thinner, but merely admitted the tips of two fingers, and still felt like a hardened ring; the cervix was dilated, thin, and greatly on the stretch." Mr. Evans consulted Dr. Lever on the propriety of incising the cervix, in which Dr. Lever fully agreed: "the os was barely as large as a half-crown piece, and with the exception of the anterior fourth felt as if it were drawn in with catgut; the anterior fourth was swollen, soft, and elongated." The pains for some time had been very frequent, vehement, and very forcing. Dr. Lever "divided the whip-cord margin of the os uteri towards the posterior half of the sides of the pelvis, in the direction of either sacro-iliac synchondrosis. The incisions were made during the contractions of the uterus: the patient made no complaint; in fact, they gave her no pain. The immediate result was a diminution of the œdematous condition of the cervix, and the loss of a small quantity of thin watery blood. The pains which had been so forcing did not at first entirely cease, but were much moderated; still, feeble as they had become, slight progress was made: there was a cessation for half an hour, they then recommenced: at four P.M. the os uteri had dilated to the extent of two inches diameter, and at a quarter to five a female child was expelled still-born, but was resuscitated on the application of the usual remedies."

In all these cases there was extreme rigidity of the os uteri; in all but one a very protracted labour; and notwithstanding so great an injury to the uterus, five of the six patients recovered. The cause of death in the sixth case is at least ambiguous: the most prominent symptoms were those of puerperal fever; and the condition of the vagina was just such as sometimes occurs when it is attacked by erysipelatous inflammation, the result of the absorption of some morbid poison.

The last is a highly instructive case, because it points out the remedy for this extreme rigidity of the os uteri, and confirms the propriety of the practice which we pointed out in a former lecture, that of incising the cervix uteri. Hitherto the practitioner thought

himself fortunate if the death of the child enabled him to remove it before any dangerous symptoms showed themselves. But you perceive that by promptly relieving this unyielding condition of the cervix, the child may be saved, and the mother secured from any risk of so serious an accident as that just described. Besides, recollect than in using this means, we are, after all, only imitating nature, who, in her own way, frequently incises the cervix, and, as you see, sometimes separates it altogether: you cannot go wrong in following her example; and, therefore, when you meet with these very embarrassing cases, where the labour is prolonged, the os uteri undilatable, the child living, I feel justified in recommending you to incise the cervix for its relief. I almost question whether we might not in some cases make an artificial dilatation by a circular incision of the cervix, and thus take away the rigid portion completely. When, under so many disadvantageous circumstances, these patients have recovered from a natural separation of the cervix, there is no reason for supposing that they would not do so when artificially removed under all the advantages that art can give. The life of the child, that cannot otherwise be preserved, should receive its due weight in the consideration of this plan of treatment. The objection which presents itself is the risk of hemorrhage in the first instance, and of inflammation afterwards. Hemorrhage is not very likely to be serious when the incised portion is so strongly compressed by the advancing head of the child, and if it occur after delivery, the plug would be a most effectual remedy. Any inflammation that might arise could easily be subdued: far more easily, it appears to me, than what might take place if no interference were attempted.

Medical Gazette, April 6, 1849, *p.* 573.

151.—*On a Suction-Tractor, a Substitute for the Forceps.*—By Professor Simpson.—[After mentioning the suctorial discs of the cuttle-fish and the limpet, and the tenacity with which these animals retain their hold, by means of their discs, Dr. Simpson says:]—

Such an arrangement and apparatus may be imitated by art; and when rendered more perfect and complete, may perhaps give us a simpler and safer obstetric power for some cases than even the forceps. In one protracted case which Dr. Simpson described, he had lately made use of this power to extract the child. When applied, the head was still high up in the pelvic cavity, and the instrument easily afforded such a hold of the head as to allow it to be slowly dragged forwards and extracted. During this extraction the instrument required to be reapplied once or twice. Dr. Duncan and Mr. Dickson were present at the delivery.

The instrument used in this case was very rude and imperfect. It consisted of a common metallic vaginal speculum, fitted with a piston, and with the edge of the trumpet-shaped concave disc at its outer or broader end covered with leather. This broader and leathered end was coated with lard, and applied to the head of the

child; and then an exhausting effect produced by moving the piston forwards. The apparatus would admit of much improvement and simplification, as by the mouth of it being made expansible, and capable of altering in shape, instead of metallic and fixed; by the inner edge of it being coated, as in atmospheric railways, by a thin layer or cushion of air inclosed in caoutchouc; by the exhausting apparatus being valved and more perfect, &c. &c.* But if the air-tractor could not be made both simple and satisfactory in its application, it would not replace the forceps; and more experience would be required to decide whether it had any title to do so.

If the instrument, when properly constructed, should be found to succeed, it would be still more advantageous in replacing the long, than in replacing the short forceps. In the case in which it was used, the head was of the height in which long forceps are usually required. If a suctorial tractor should answer in some long forceps cases, and enable us to drag with sufficient force upon the exposed portion of the scalp, it would save the danger dreaded by many, of wounding the uterus by introducing and working the blades of so long an instrument as the long forceps high up in the neck and cavity of the uterus itself.

Presentations of the breech sometimes require instrumental assistance. The hook passed over the flexure of the thigh is dangerous, and very apt to injure. The forceps, as recommended in these presentations by some authorities, are often inapplicable and inefficient. Perhaps the air-tractor may afford us a new and sufficient instrumental force for the management of some of these cases. Its use would be simpler and safer than any of the other methods proposed.

Dr. Simpson further observed, that he was not aware that any one had applied practically this obstetric means before it was employed in the case detailed to the society. But the idea of using such a power had been long ago proposed by a gentleman, for whose works and talents they all entertained the utmost respect, Dr. Arnott of London. In his admirable work on Physics (p. 636), Dr. Arnott alludes to the subject in the following words:—"The forceps (says he) to be well and safely used, requires address, which even the naturally dexterous man cannot possess without a certain degree of continued practical familiarity with it: and, except in large towns, a man must be unfortunate in his practice who often requires it: hence the really small number of persons who use it well. A tractor of three inches in diameter would act upon any body, to lift or draw it, with a force of about a hundred pounds —with more, therefore, than is ever required or allowable in obstetric practice. In lifting a stone, the tractor does not act as if it

* Since the preceding abstract was drawn up, I have made a great variety of experiments, with the view of ascertaining the best form of disc or mouthpiece and exhauster. I find that a syringe and piston, valved like the common breast-pump, so as to make a pretty perfect vacuum, and having a disc attached to it formed of a double cup, the outer cup of caoutchouc, and overlapping considerably the edges of an inner and smaller cup of metal or gutta-percha, makes an Air-tractor possessed apparently of the necessary applicability, and requisite adhesive and extractive power.

were glued or nailed to the stone, but merely bears or takes off the atmospheric pressure from one part, and allows the pressure on the opposite side, not then counterbalanced, to push the stone in the direction of the tractor; so when placed upon the child's head, it would not pull by the skin, in the manner of a very strong adhesive plaster applied there, as uninformed persons would be apt to suppose; but by taking off a certain atmospheric pressure from the part of the head on which it rested, it would allow the pressure on the other side or behind to urge the head forward on its way. Of course the pressure in such a case would not operate on the head directly, but through the intervening parietes and contents of the abdomen. It would be preferable to have a gentle and diffused action of the tractor over a large space, rather than an intense action on a small space, and therefore a tractor for the purpose now contemplated should not be very small, and should have a little air underneath it in a slight depression or cavity at its centre. The forceps must be more effective than the tractor for rectifying malposition of the head, and diminishing its tranverse diameter; but the tractor will answer both these purposes in a greater degree than might at first be expected."

Several of the old surgeons, as Parè, Paaw, Hildanus, Scultetus, &c., have described and figured suckers, or tractors, as applied to the head with the object of removing depressions of the cranium in children.

Monthly Journal, Feb. 1849, *p.* 556.

In attempting to construct a proper obstetric air-tractor, a great variety of forms had been tried by Dr. Simpson. The form which he found most effectual, consisted of a slender short brass syringe ($1\frac{1}{2}$ or 2 inches long) worked by a double valve piston, like a breast-pump, having attached to its lower extremity a cup of half an inch in depth, and $1\frac{1}{2}$ inch broad at its edge. Over this inner cup was placed a second cup formed of vulcanized caoutchouc, and so deep as to overlap the edge of the inner by six or eight lines. The mouth of the inner cup was covered by a diaphragm of very open brass wire gauze, and over it a piece of thin sponge, flannel, or the like, was placed, with the view of preventing injury to the scalp, and not allowing it to be elongated and drawn up into the vacuous space in the manner which we see occurring with the skin in the common operation of cupping. The parts thus applied to the child's hand consisted of caoutchouc and sponge.

Such an instrument, when fixed to the palm of the hand, lifted readily without detachment a weight of 30 or 40lbs. This Dr. Simpson showed by experiments performed before the Society. An air-tractor, with a caoutchouc cup of three inches in diameter at its mouth, lifts, when applied to and stretched upon the hand, a weight of 60 or 80lbs.

The inner cup might be round, oval, &c., and vary in form and size. The outer caoutchouc cup would admit of much further improvement. A double cup of caoutchouc seemed to render the

instrument stronger. Of course, with all this, the vacuum, however great, was still always more or less imperfect.

The air-tractor seemed to possess various advantages over the forceps. It was far less dangerous to the mother, as it was attached to the exposed part only of the scalp of the infant; the forceps were required to be passed high up between the head and maternal passages, and in incautious and inexperienced hands were apt to injure one or both. The materials of the air-tractor (caoutchouc and sponge) were safer to the mother and child than the material of the forceps (steel). The forceps always took up a certain amount of space between the head and passages; the air-tractor did not. The air-tractor was greatly less in size, and consequently far more portable. It could be applied with sufficient firmness and power to enable us to rotate the head, or change its *position*; as from, for example, an occipito-posterior to an occipito-anterior position, (the form of rotation most frequently required in practice). It probably could be applied also to change the presentation—which the forceps could not effect—as, for instance, to bring down the occiput, when fixed there, in frontal presentations. Perhaps it may be found as useful, or more so, when the head is at the brim as when it is at the outlet. It may be made so as to fix upon the breech—in cases in which the forceps cannot be very readily or safely used. If found perfectly easy of application, it may enable the accoucheur, by adding a few pounds to the strength of each pain, to bring to a safer and speedier termination cases that would otherwise go on tediously, hour after hour, and in which we would still not choose to use so formidable an instrument as the forceps; for it is to be recollected that the danger of parturition to both mother and child increases in a ratio progressive with its duration. In cases of inertia of the uterus—the most common cases for the short forceps—it will probably be found specially applicable. And in such cases it is surely better to extract the child by a safe force, thus applied *ab anteriori*, than to effect its expulsion by the ergot of rye—which produces its result by forcing the uterus to push and press its parietes with renewed power and violence against the opposing body of the fœtus.

Dr. Simpson stated that he had now used the air-tractor which he had constructed in several cases of labour, and with results answering his best expectations. But it doubtless admitted of much further improvement in construction, in mode of application, in working, and other details.

Monthly Journal, March, 1849, *p.* 618.

[On the probable uses of an air-tractor, Mr. James, of Exeter, says:]

1st. It would be applicable in cases of disproportion with safety before the ear can be felt, and consequently before the short forceps could be employed.

2nd. It would be applicable in very numerous cases, where we now hesitate to employ them, *i. e.*, where there is no disproportion

between the head and the pelvis, but simply where from other obstacles, or defective uterine action, the labour has become long, exhausting, and consequently dangerous; and I may perhaps be warranted in believing that in such cases it would be employed many times where the forceps are either *not* employed, or with great reluctance.

3rd. In cases of disproportion, where the head is too high for the ear to be felt, this mode of traction, although not sufficient possibly to deliver, might still suffice to bring the head of the child within the reach of the short forceps,—a great point gained in many cases.

Medical Gazette, March 16, 1849, *p.* 479.

152.—*On the Use of Ice in promoting Uterine Contractions.*—By Dr. Louis Mackall.—Dr. Mackall, a highly respectable physician of Maryland, in a communication to the committee of the American Medical Association, states, that for several years past he has been in the habit of employing pounded ice in cases of suspended or protracted labour. That when this had been swallowed freely, the pains had immediately returned, the uterus had contracted strongly and the labour been speedily completed.

He also communicated letters from Dr. B. Mackall, Dr. Skinner, and Dr. M'Cubbin, of Maryland, strongly corroborating his statement of the efficiency of ice in promoting the contractions of the uterus.

Dr. B. Mackall remarks, that his experience in the use of ice for this purpose extends through a period of ten or twelve years. "During that time," he says, "I have had frequent opportunities of observing its effects, and I can safely declare, that in no single instance have I been disappointed in its action. I have used it under a variety of circumstances, and always with the most satisfactory result. In cases where labour pains had been suspended for twelve or twenty-four hours, they have been renewed promptly and efficiently. In cases of inevitable abortion, where the uterine contractions are feeble and inefficient, and where hemorrhage is considerable, I regard it as invaluable. In retention of the placenta from imperfect contraction of the uterus, and in cases of alarming hemorrhage after delivery and expulsion of the after-birth, it is equally applicable. In short, wherever the firm contraction of the uterus is desirable, that object will most certainly be attained by the administration of ice." In no instance have I witnessed the slightest ill effect from its administration.

Dr. Blackburn of Barnesville states, that he has used a strong decoction of the roots of the cotton plant in two cases of labour with successful issue, to promote uterine contractions where ergot had failed.—*Transactions of the American Medical Association*, vol. i, p. 234.

Monthly Retrospect, April, 1849, *p.* 87.

153.—*On the Induction of Premature Labour.*—By Professor Paul Dubois.—M. Dubois confines himself to those cases where the safety of the mother is in question, not regarding in any respect whether the child is viable or not. This absolute abandonment of the interests of the infant, when the life of the mother is seriously endangered, although not admitted by many accoucheurs, now finds less and less opposition every day. M. Dubois lays down the following propositions:—

Pregnancy introduces into the economy numerous physiological and anatomical changes;—

Among these changes some are constant; as the expansion of the uterus, and the vascular development of this organ.

Others are variable; such as the phenomena arising from sympathy between the uterus and other organs.

These changes are generally confined within limits compatible with the general health;—

Sometimes they exceed these limits, and give rise to morbid affections more or less serious, and such that the only resource for the mother's safety is to bring on labour.

Independently of the affections above alluded to, there are other diseases which may develope themselves during pregnancy, and, in addition, be aggravated by the mere co-existence along with them of that state. This aggravation may arise from mechanical conditions, or by way of sympathy, and may render necessary the induction of labour.

A case of severe bronchitis during pregnancy lately occurred in M. Dubois' clinique, where he had resolved to induce premature labour. But a favourable and sudden change took place in the disease, and rendered this operation unnecessary.

The following additional propositions are laid down by M. Dubois:

1. Premature labour is more certainly indicated and induced with more chance of success, according as the morbid states for which it is resorted to as a cure are more closely connected with the pregnancy, and the necessary concomitant conditions of that state.

2. Further success is more probable according as the circumstances indicating the operation are likely to disappear on the cessation of pregnancy.

3. It is necessary that the operative procedure should be simple, and such as adds no additional danger to that which already exists.

From these propositions we may deduce the following consequences:—That artificial labour will succeed best in those maladies aggravated chiefly by the mechanical changes in the uterus; whilst, on the other hand, the chances of success will be less when the operation is performed for an intercurrent disease. Further, those cases arising from, and depending upon, simply mechanical causes, will be more likely to be benefitted than those arising from sympathetic changes.

The first mechanical condition requiring the operation, is *excessive dilatation of the uterus by superabundance of the liquor amnii.* In illustration, a case occurring in the practice of M. Duclos (see Bul-

letin de la Faculté, tom. vi. p. 222) is cited, where artificially-induced labour evidently saved the mother's life. Another interesting case is mentioned, where M. Stoltz had resolved to resort to the same plan under circumstances of the greatest urgency, but nature had completed the work before his arrival at the patient. The waters had flown off, and complete delivery restored the woman to comparative health.

The second set of cases sometimes demanding the operation, are those where, in addition to the pregnant uterus, *the abdomen contains a large tumour*. Thirdly, cases where, from the *malconformation of the pelvis and trunk*, there is not sufficient space for the uterus to develop itself. We may remark, however, that in these last sets of cases, premature labour generally comes on spontaneously.

Fourthly, cases of *retroversion of the uterus*, in which it becomes impacted in the small pelvis.

Fifthly, those cases of *uterine hemorrhage* where nothing but the evacuation of the ovum, and the contraction of the uterus, will stop the bleeding.

We now come to another series of cases demanding the operation; and, firstly, we mention those nervous diseases which may demand it when they exist to an excessive and dangerous degree, as *chorea, convulsions*, &c. But M. Dubois inculcates extreme caution in such cases, as also in cases of *obstinate vomiting* during pregnancy. Two cases are mentioned in which *cholera* supervened upon pregnancy; in one labour was induced, in the other it came on spontaneously; both women recovered.

There is another series of cases sometimes demanding the operation; namely where there exists chronic disease, very much aggravated by the mechanical distention of the uterus, *as disease of the heart, of the aorta, asthma, &c.*

Again, it has been proposed to bring on labour in cases where the child has been previously found to *die at some regular time*, before the completion of the ninth month. But this ought to be done only when the infant is alive and viable, and even then it should be resorted to with reserve, as there may be hope that the disease which caused the death of the child in a former pregnancy, may have now disappeared.—*L'Union Médicale*, Nov. and Oct. 1848.

Monthly Retrospect, Jan. 1849, *p.* 13.

154.—*New Mode of Inducing Abortion.*—Dr. GRENSER, of Dresden, recommends, in the Nov. number of Schmidt's Jahrbuche, page 232, the warm douche applied directly to the uterus as a safe and efficient means of bringing on premature labour, when indicated by the state of the parts, or the general condition of the mother. In illustration, he gives the case of a female, thirty-three years of age, in whom, on account of a narrow pelvis, abortion had on a previous occasion been brought on by means of plugging the vagina. In the present instance the douche was resorted to in the eighth month, and was applied seven times in three days, and by means of a small canula. The water, he tells us, is to be of a temperature of

34° R., equal to 108° F., and the force with which it is to be projected equal to a fall of eight feet. It is important that the canula be introduced well into the vagina, and that the removal of any obstructions be carefully attended to. In the case related, the parts became thoroughly relaxed, and parturition ran the normal course; the lochia was fairly established, and the mother did well. The child required turning, but was born alive and lived nearly twenty-four hours. *Medical Times, April 7, 1849, p. 455.*

155.—*On the Nerves of the Uterus.*—By Dr. W. Tyler Smith.—If we adopt the view that the plexuses of the abdomen, like the external plexuses, are mechanical adaptations for mixing nervous fibres from different sources, and apply it to the uterine nerves, it becomes a possibility, and I may say, a probability, that the uterine nerves are more variously derived than any other nerves of the body. They may be derived from different points of the great nervous tract between the origin of the pneumogastric nerve, in the medulla oblongata, and the origin of the sacral nerves, in the cauda equina. There is no actual impediment to the approach of nervous fibres to the uterus, from the medulla oblongata through the medium of the vagus; from the cervical portion of the spinal marrow by the phrenic; from the thoracic by the splanchnic nerves; and from the dorsal by the compound lumbar branches of the sympathetic, and from the sacral nerves, which latter come directly from the spinal cord.

[Dr. Smith gives the following physiological proofs of the existence of a large supply of nerves to the uterus. He says:]

No one doubts that the uterus is susceptible of pain; this is one roof of a nervous connexion between the uterus and the brain as he organ of sensation. No one doubts that an emotion of the mind may excite the uterus to powerful contractions. This is another proof of nervous connection between the brain and the uterus. No one denies that, during pregnancy, the uterus affects synergetically the most distant organs, producing the changes in the mammæ and the gastric disturbances, which are so universal; these facts are explicable by the existence of nervous communications between the uterus on the one hand, and the stomach and mamma on the other. There is no other route than that afforded by the nervous system. No one denies, either, that after parturition, the breast or the stomach may excite the uterus to action; these facts further prove a reciprocal influence, *from* the stomach and breasts *to* the uterus. Such facts are, in their sphere, as convincing, as though the eye could see a great concourse of nerves running between these organs. A physiological fact is worth quite as much as an anatomical fibre. These communications can only take place through the medium of nerves, and whether there be one channel or many; whether the chief place be given to the spinal fibrillæ of the sympathetic, or to the proper nerves of the spinal cord, the necessity for uterine nerves is equally inexorable. There *must* be nerves, and there must be nerves *sufficient* for the

functions to be performed. Anatomical facts can never give the lie to the facts of physiology.

[With respect to the increase in size of the uterine nerves during pregnancy, Dr. Smith observes:]

Those who maintain that the nerves of the uterus do not increase in size during gestation, must show, not only that there is no such increase in the gravid, as compared with the virgin uterus, but they are bound to shew, that the nerves relatively diminish in breadth during pregnancy; for when we consider the extent and superficies of the fully developed gravid organ, it must be evident to the meanest capacity, that if the nerves of the virgin uterus, remaining stationary as regards size, are merely stretched upon, drawn out, or unfolded, over and in, the enormously increased gravid organ, they ought proportionately to appear as much *diminished* as the growing tissues of the uterus are *increased* in size. The length of the virgin uterus is two inches; of the gravid, at the end of gestation, twelve inches. The weight of the virgin uterus is one ounce; that of the fully-developed gravid organ, twenty-four ounces. The disproportion in size between the fœtus and the adult man is not nearly so great as the disproportion between the virgin and the parturient uterus. If we could conceive the nerves of the fœtus stretched out or unwound in the space of nine months, so as to accommodate the skeleton of the adult, we should have but an imperfect idea of the mechanical marasmus of the uterine nerves at parturition, which we are called upon to believe, if the nerves do not actually grow during gestation.

London Journal of Medicine, May, 1849, *p.* 466.

156.—*On the Action of the Fallopian Tubes in embracing the Ovaries.*—By Dr. W. Tyler Smith.—In the whole range of reflex action, or, indeed, of physiology, there is nothing more extraordinary than the reflex action of the Fallopian tubes from ovarian excitation. There seems a positive instinct, a power of selection, in the exactitude with which their fimbriated extremities find out and embrace the ovaries, but for which, extra-uterine fœtation, with its great dangers, would be very frequent. In this internal embrace, the most perfect adaptation occurs, in the total absence of sensation and volition. Many minds have felt a difficulty in receiving the doctrine of the independent and insentient action of the true spinal marrow, and its excitor and motor nerves, because of the extraordinary adaptation and appearance of design sometimes observed after decapitation or decerebration, being fain to consider such adaptation a proof of the presence of design and will, in the spinal marrow itself. Here, in the case of the Fallopian tubes, there can be no suspicion of volition, and yet the motions of these muscular tubes are so unerring in their power of embracing the ovaria, and of not seizing the intestines or the abdominal parietes, as quite to equal any of those actions which have been supposed to be emotional or voluntary in decapitated animals.

Ibid, p. 465.

157.—ON THE MODES OF ARRESTING UTERINE HEMORRHAGE.

By Dr. W. Tyler Smith.

[Dr. Smith treats this subject under several heads. He speaks first of]

The different modes of exciting reflex contraction of the uterus in uterine hemorrhage.—Reflex contractions may be excited by stimuli applied to certain organs at a distance from the uterus; by stimuli applied to certain other organs and surfaces in the vicinity of the uterus; and lastly, by stimuli applied to the uterus itself.

[Under the first division Dr. Smith mentions as excitors of contraction, the *mammary nerves* (called into exercise when the child is put to the breast), the *pneumogastric* (when food, hot or cold drinks, or emetics, are taken into the stomach), and the *abdominal intercostal nerves*. Respecting the latter, he says:]

The cutaneous nerves of the abdominal parietes are excitors of the uterus in an extraordinary degree. The sudden impression of cold or heat upon the abdominal surface will almost always excite the most energetic contraction of the uterus affected with inertia, and from which hemorrhage is taking place. We may contract the relaxed and diffuse uterus to a firm ball, by douching the abdomen with cold water from a height; or by plashing a towel, taken out of cold water, upon the naked abdomen; or by suddenly placing the hand, taken out of iced water, upon the umbilicus. If the surface of the abdomen should be cold, the sudden impression of heat produces a similar contraction. In all these instances it is the extremities of the cutaneous nerves of the abdomen which are affected by the stimuli. The result takes place too instantly to permit the belief that any sensation of cold or heat passes through the abdominal parietes to the uterus itself. The extremities of the cutaneous nerves of the abdomen are, in fact, almost as distant from the uterus as the superior intercostal nerves which supply the mammary glands.

About the true mode of action of irritation of the mammary and pneumogastric, and the abdominal intercostal nerves, there can be no doubt whatever. These nerves are too remote from the uterus, in their peripheral extremities, to admit of any other explanation save that of the reflex function.

[Under the second division, or organs and surfaces in the vicinity of the uterus, Dr. Smith refers to irritation of the *vulval*, *vaginal*, *vesical*, and *rectal* nerves, induced by the application of cold to those parts. He says:]

This group of organs, it will be observed, is in the immediate vicinity of the organ from which the blood flows, and they are in great measure supplied by nerves having the same origin as the uterine nerves. But what I wish to insist upon is this, that all the actions I have been describing are *reflex* in their nature. Physi-

ology repudiates the idea of uterine contractions, excited by means of continuity or contiguity of the organs excited with the organ which contracts. The peripheries of the nerves of the bladder, rectum, vulva, and vagina, receive the impression, and the incident nerves, the spinal centre, and the motor nerves of the uterus distributed to its muscular structure, are all concerned in the muscular contraction which ensues. Though the organs excited are near the uterus, which contracts, the route of the nervous action is precisely the same as it was in the case of the stimuli applied to the mammary or the pneumogastric nerve. I make these observations because I still see the obsolete notion, which so long perplexed physiology, of referring all such actions to the sympathetic nerve, and to the mere anatomical distribution of nerves to neighbouring organs from the same source, cited by some authorities as sufficient to account for all such motor phenomena as those which take place between the different pelvic organs respectively. They look at the nerves interlacing and communicating with each other, and their minds do not reach to the necessity of considering the spinal centre as the organ which connects the peripheries of excitor and motor nerves, and without which their contiguity or distance would be equally useless.

I now come to the consideration of the contraction of the uterus, and the arrest of hemorrhage by irritation of the uterus itself, through the medium of stimuli applied to—

The uterine nerves.—The power we possess over the uterus by this means is very great indeed, and the modes by which we can exert it are very various. We may excite the nerves of the external surface of the uterus, the nerves of the internal surface, or the nerves of the os uteri. When we produce uterine contractions by irritating the uterus through the abdominal surface, we act on the first series of nerves; when we inject cold water into the uterine cavity, we act on the second; and when we irritate the os uteri by digitation, we act on the third. These measures are of great importance in our attempts to rouse the uterus itself to action. We may excite the organ by introducing ice into the cavity, by injecting cold water into the cavity, or by injecting stimulating solutions. Dr. Arnott, of Brighton, proposed, I believe, to place a bladder in the uterus, and then to inject the bladder, imagining that the mechanical distention of the uterus would arrest the bleeding on mechanical principles. If, however, such a proceeding were operative at all, it would be on a very difficult principle. Various substances have been proposed for injection into the uterine cavity, and I wonder it has not been proposed to inject the ergot of rye, particularly as it is said that M. Velpeau excited parturient action in the common fowl, by placing the ergot upon the sphincter ani. It would probably excite the internal surface of the uterus, just as sulphate of zinc excites the gastric mucous surface. Besides digital irritation of the uterus through the abdominal parietes, there is another external mode of inducing uterine reflex action, in the use of the abdominal bandage. The compression of the uterus thus occa-

sioned, increases uterine action, or evokes it when it has disappeared; it is certainly one of the best means we have of preventing that inertia of the uterus after delivery which so strongly tends to hemorrhage. The introduction of the hand into the uterus, or the irritation of the os uteri by the fingers, or the whole hand, excite the uterus very powerfully. Besides the mere introduction of the hand, irritation of the internal surface of the organ by the tips of the fingers is sometimes practised. A very recondite mode of arresting uterine hemorrhage was suggested by Sig. Mojon, an Italian physician. He proposed to inject the umbilical vessels with cold fluids or astringent solutions, and Professor Müller appears to speak approvingly of the practice. The very act of hemorrhage itself sometimes supplies the source of irritation which prevents further loss of blood. After blood has been poured out, firm coagulation takes place, and the coagulum becomes a salutary irritant to the uterus. In this list of uterine local excitants, I may mention certain obstetric manœuvres, which, though often performed with other intentions, act upon the same principle as those which I have now been considering. For instance, in hemorrhage occurring before the rupture of the membranes, the liquor amnii is evacuated. This is generally done with a view of lessening the size of the uterus, and of diminishing the quantity of blood which circulates in its structure, and also of bringing the child into immediate contact with the uterine surfaces, after the manner of a plug. But besides this, the body of the child becomes an excitor of reflex action. So also, in cases of placenta prævia, whether the rash plan of tearing away and extracting the placenta, or the old method of separation of the placenta and turning, be adopted, the hemorrhage is arrested partly by the fœtus acting on the principle of a plug, but partly, and still more, by the contraction of the uterus consequent upon the irritation necessarily incurred in separating the placenta. When the placenta is extracted, the fœtal head comes into immediate contact with the excitor surface of the os uteri. When turning is resorted to, the extremities and trunk of the child become uterine excitors.

Now, in all these varied actions, the excitor nerves, the spinal centre and the motor nerves are concerned. The uterus does not contract simply and singly from any inherent power belonging to the organ itself. Its actions from these sources of excitation depend mainly on its connexion with the spinal marrow. Doubtless there are other forms of action mixed up with those which are purely reflex, and to those I shall presently revert; but what I would contend for is, that much of the uterine action consequent upon irritation of the uterus itself, is as strictly reflex, as much produced through the medium of incident and motor nerves, and the spinal centre, as are the uterine actions caused by irritation of the mammary or rectal nerves. This is what I cannot too much insist upon.

The different modes of exciting direct or centric spinal contractions of the uterus, in uterine hemorrhage.—1. If we administer a dose of the

ergot of rye to a patient suffering from hemorrhage, we observe in many cases that uterine contraction will follow. The fact has been known extensively enough, but the question has never been properly asked, how does the ergot act? or if asked, the question has certainly never been answered. It has been said, confusedly, that ergot has a special action on the uterine contractile fibre, or that it excites the nerves of the uterus; and these vague sayings have satisfied, or seemed to satisfy, the obstetric mind. I have no doubt that the true channel through which the ergot acts is the blood, and that the organ it reaches and affects, through this channel, is the spinal centre. We may illustrate its *modus operandi* by referring to the action of emetic substances on the stomach. There are certain substances which, when taken into the stomach, immediately excite all the motor actions of vomiting. This happens, for instance, when sulphate of zinc comes into contact with the mucous membrane of the stomach. Sulphate of zinc, then, appears to excite the actions of vomiting in a reflex form. If there are any such medicines adapted to produce uterine action, by simple contact with the uterus, just as cold water does, they remain to be discovered. But again, in the case of the stomach, there are other medicines—the potassio-tartrate of antimony, for instance, which acts as an emetic only after it has been taken into the circulation, and which acts more promptly when injected into the blood itself. I believe the action of this medicine to be perfectly analogous to the action of the ergot of rye; that the one acts upon the medulla oblongata and the motor nerves of vomiting; the other, upon the lower medulla spinalis, and the motor nerves of uterine action. The ergot, therefore, is a remedy of centric utero-spinal action. We shall presently see that these inquiries in the mode of action of remedies are not without a practical use. The ergot, in addition to its utero-spinal action, sometimes produces vomiting, thus affecting the medulla oblongata, as well as the lower segments of the spinal centre, but it is remarkable that, though an excitant of motor action in these instances, it diminishes the frequency and force of the heart's action. This action of the ergot is favourable in some cases of hemorrhage, but unfavourable in others, where failure of the circulation, and dissolution, appear to be imminent.

2. Ipecacuanha is another medicine which is sometimes given in uterine hemorrhage. This medicine, by its emetic action, excites contraction of the abdominal muscles, and compression of the uterus, which in turn may re-excite some amount of uterine reflex action, but over and beyond this it appears to have a special action upon the uterus, increasing its contractile power beyond what we could imagine to occur from the merely secondary effects of vomiting. Ipecacuanha, then, appears to influence both the medulla oblongata and the lower medulla spinalis. This double action of ipecacuanha upon the two extremities of the spinal centre is very extraordinary. It would be worth while to try, in uterine hemorrhage, the effect of an injection of sulphate of zinc, with a view to ascertain whether it exerts the same specific influence on the lining

membrane of the uterus and its nerves, as it does upon the pneumogastric nerve in the stomach.

3. Opium is also, in hemorrhage, a remedy of direct spinal action. In moderate loss of blood it undoubtedly promotes uterine contraction, and arrests the flow of blood. A good deal has been said and written about this and other remedies acting beneficially, by equalizing the circulation of the blood; but this is an explanation utterly incompetent in the case of hemorrhage from the uterus after delivery. Opium is an excitant of spinal action of the direct kind, and thus it is that its administration is beneficial in hemorrhage, with uterine inertia, and injurious in puerperal convulsion, of the active kind. In both disorders its use and abuse have been empirical, and but little understood.

4. As a minor remedy of the same spinal relations as the foregoing, the biborate of soda may be mentioned. It may be said, briefly, that all stimulants taken into the stomach and received into the blood have a centric spinal action in hemorrhage from the uterus.

5. But one of the most important agencies of a centric kind, and one different in its nature from the foregoing, consists in the influence of emotion. The former actors have been physical in their nature, this is purely psychical in itself, though its effects are evident in material motor contraction. In some cases of dangerous hemorrhage, the mere arrival of the accoucheur in whom the patient places confidence, will be sufficient to contract, for a time, the uterus, and restrain the loss of blood. Hence the control of all outward signs of apprehension in the obstetrician is of the utmost moment to his patient. A depressed look, or a faltering word, may destroy a life which hopeful words and a strong will would have saved. It is remarkable, as exemplifying the influence of emotion, that when a hemorrhagic patient is sensible, so as to know her child, the act of suckling the child is much more efficacious than when she is insensible; though, as I have shown you, insensibility in no wise lessens the vigour of the reflex actions. Where sensibility is present, the influence of emotion comes in aid of the reflex action. It is also more efficacious for a woman to suckle her own child than that of another person. It is only the hopeful and confident emotions which excite muscular contraction. The depressing passions paralyze the uterus as well as other muscles, and they are, in truth, not unimportant as causes of hemorrhage.

[Dr. Smith next speaks of "the different modes of exciting uterine action by stimulating the muscular irritability of the organ," as distinguished from the excitement of muscular action through the nerves. He mentions three methods by which this is performed: the application of cold, mechanical irritation with the hand, and the use of galvanism. With regard to the latter, he says:]

In patients perfectly paraplegic, with entire loss of reflex uterine power, the uterus has been excited to contractions sufficient to

expel the fœtus by means of galvanism. Dr. Radford, of Manchester, applied this power to the arrest of uterine hemorrhage. One pole of a galvanic trough being placed within the os uteri, and the other applied over the fundus, it has been found, that on making and breaking the galvanic circle, powerful uterine contractions occur. It is said that the uterus can be made to contract by this agency when it will obey no other stimulus, and I have little doubt that this is correct. It accords with all we know of the influence of galvanism upon the muscular fibre. The contraction of the uterus from galvanism is probably the most simple mode in which we can act upon the irritability of the muscular fibre without complicating it with reflex actions. The reflex actions excited by passing galvanic currents through muscles are very slight, if they occur at all. This is proved by a great number of experiments. There is, however, one important disturbing agency in the application of galvanism, which must be taken into account. The application of this remedy, and the painful sensations it excites, disturb the emotions considerably. In some cases the emotional excitement increases the influence of galvanism; in others, it weakens or suspends it altogether. This is probably the reason why, in some cases, galvanism has produced little or no contractile effects.

The different modes of arresting uterine hemorrhage mechanically.—1. There are various modes of compressing the uterus mechanically, which are resorted to in cases of hemorrhage. One mode is that of grasping the uterus through the abdominal parietes, and holding the organ so firmly as to prevent the further effusion of blood, while other means are being applied to ensure the permanent contraction of the organ. Another mode sometimes followed is that of introducing one hand into the uterus, and then exerting pressure with the other hand externally, so as to compress the bleeding portion of the organ between the two hands. A third mode of mechanical arrest, and one which is exceedingly useful, consists in the abdominal bandage, made to embrace the pelvis tightly, and having several towels or napkins folded into a conical shape placed underneath. I have mentioned to you the proposal to distend a bladder within the uterus, with a view to distend the uterus mechanically, and so arrest the loss of blood; but this is mechanism carried to mischevous excess, and with a total forgetfulness of the fact, that the distention of the uterus must distend the gaping mouths of the vessels from which the blood escapes.

2. Compression of the aorta, so as to cut off the supply of blood to the uterus, and prevent arterial hemorrhage, has been insisted on by Baron Dubois, M. Chailly, and others. Several years ago, I pointed out that the directions given by obstetricians were wrong, and that we should make pressure upon the inferior cava instead of the aorta. The great hemorrhages, those which kill, are from the veins, and not from the arteries, and further, not from the veins which are returning blood from the uterus, but from the vena cava and the heart itself. When the uterine veins are open, there is a great column of blood between the uterus and the right auricle, to the sudden escape of which there is no let or hindrance

except uterine contraction. In those patients who have died from loss of blood, injections driven into the inferior cava from the right auricle readily escape into the uterine cavity by the uterine veins. Compression has been successful because it has been difficult or impossible to comply with the directions for pressing upon the descending aorta without, at the same time, compressing the inferior vena cava. The compression of the great vessels is, however, at best, palliative, not curative, but it may give time for the application of other remedies.

3. The various forms of plugging the vagina and the uterus are a distinct class of obstetric remedies in hemorrhage. Mechanical plugging is extremely useful in hemorrhage in many forms of abortion, in certain hemorrhages during delivery, and in cases of placenta prævia. The sponge or linen plug is useful in moderate floodings of the impregnated and also of the unimpregnated uterus. This form of plug, when it fills the whole of the vagina, acts by preventing the escape of blood externally; this favours the coagulation of the blood effused behind the plug, and though the plug itself does not reach to the bleeding surface, the coagulated blood is converted into a secondary plug, which acts directly upon the mouths of the bleeding vessels. But besides the common form of tampon, we often convert the fœtus itself into a plug, having precisely the same mechanical action. Thus when, in hemorrhage before delivery, we rupture the membranes, besides the other results, the body and limbs of the fœtus come into direct contact with the hemorrhagic tissue. So in placenta prævia, when the presentation is allowed to remain, but the placenta is torn away, the fœtal head becomes in effect a tampon to the os and cervix uteri of the most powerful kind. Again, when turning is performed in these cases, the feet are brought down, and engaged in the os uteri as a plug. These instances only differ from the plug of sponge or linen in their being more effective, and in being applied from within instead of from without. After delivery, no form of plugging can be of much service.

The arrest of uterine hemorrhage by astringents and refrigerants.—This exposition of the principles of treatment would be incomplete without referring to the action of astringents and refrigerants. These remedies, consisting of the acetate of lead, the mineral acids, alum given internally, and used in the form of injection, the sustained application of local cold, &c., are useful in all hemorrhages which do not proceed from patulous vessels sufficiently large to require the contraction of the muscular organ in order to close them, or when the uterus is so far undeveloped as to render its muscular contraction impossible. Here we are restricted to mechanical remedies and medicines of the class I am considering. Such are hemorrhages occurring in the course of uterine disease, or in menorrhagia; uterine floodings in the early months of pregnancy; and the profuse lochial discharges which sometimes occur a few days after delivery, when the uterus has become perfectly contracted.

Such are the principal modes of arresting uterine hemorrhage. They are more numerous and interesting than pertain to any other

organ of the body. This is natural enough, when we reflect that the uterus is the only organ which secretes a sanguineous fluid physiologically, and that it affords the only instance in which large bloodvessels with open mouths, leading to fatal hemorrhage, may be but the slightest conceivable divergence from a physiological process, in the separation of the maternal and fœtal circulations after delivery. You may observe the profusion of appliances which we possess for the arrest of uterine hemorrhage. There is no other malady which can afflict the human frame, in which we have such an absolute fertility of remedies. Yet parturient women are constantly perishing from hemorrhage. The truth is, that the many remedies for hemorrhage have been so jumbled together, and so ill understood, that they have never been used in the systematic manner they really admit of. The methods of obstetrication have been ample enough, but the directions for their selection and combination have been deficient. You have seen how susceptible all the remedies in this grave and important casuality are of physiological arrangement; how, indeed, the mere touch of physiology has been sufficient to marshal them in something like due order and proportion. It would, I am sure, be impossible to find any subject within the entire range of medicine, of equal importance, of which this might be said with more perfect truth.

Thus you see how profoundly physiology impresses itself upon our therapeutics in the treatment of uterine hemorrhage. It will not do for those who are too idle to study the matter to say—We will be practical—we will leave the physiology of the question to be decided by others. Physiology protests against being thus postponed—it will not be put off—for it is inseparable from practice. Without a physiological comprehension of the points of treatment, what is likely to happen? In the arrest of hemorrhage many remedies will probably be tried, either in succession, or in confused combination; but instead of a judicious combination of the several modes by which uterine contraction may be produced, mechanical means, or reflex or direct actions, will be trusted to alone, in such wise, that though many remedies appear to be used, only one or two principles—and those, perhaps, not the most important—will be invoked. It is just like the old Mithridatic formulary! Thus, suppose cold be applied to the rectum, cold to the abdomen, iced water given the patient to drink, and the child placed at the breast, there is great appearance of activity, but in reality only the reflex action of the uterus has been excited, which would have been equally powerful if only one efficient mode of excitation had been tried. Or again, after one mode of reflex action had been tried in vain, the reflex function being exhausted, it would only be waste of time to endeavour to excite reflex action by applying irritation to other incident nerves; yet this is often done. We do not use all the resources which physiology places at our command, unless we call forth, in a dangerous hemorrhage, the reflex spinal action, the direct spinal action, the irritability of the muscular fibre, and apply the mechanical methods of arresting the flow of blood from the uterus.

If, for instance, instead of the jumble of reflex actions, we apply alternate heat and cold to the abdominal surface, give a dose of ergot, irritate the uterus through the abdominal parietes, and grasp it with the hands, we apply all the modes of inducing uterine contraction, and we thus get far more than a fourfold increase of contractile power.

In uterine hemorrhage, neither heat nor cold, continuously applied, excites the full amount of uterine action. They must be applied alternately. A surface exposed to continuous cold becomes at length wholly inexcitor: but now the application of heat becomes powerfully excitor, and after awhile the surface again becomes impressible by cold. In applying temperature to the arrest of uterine action by contraction, these facts should be constantly borne in mind. Whatever the excitor surface acted upon, cold and heat should be applied alternately. This plan both increases and husbands the reflex motor power.

Having laid down the principles upon which the arrest of uterine hemorrhage in all its forms must depend, much would still remain to be said about the measures proper in different classes of cases. No two events can be more different than uterine hemorrhage occurring in the first month of gestation, and uterine hemorrhage taking place shortly after the delivery of the child, and the expulsion of the placenta. In the one case the stream of blood passing to and from the uterus is inconsiderable, the openings from which blood escapes are small, and if the uterus is not contractile, at all events it is not dilatile. But, after delivery, the circulating channels in the uterus are immense, and unless closed by uterine contraction, they must gape widely, and pour forth blood in full streams. We may consider the heart a contractile organ placed at one extremity of a large column of blood, and the contractile uterus at the other. Unless the uterus contracts and supports this column of blood, the result is just the same as though the heart itself were studded with perforations. The treatment of hemorrhage at the commencement and termination of pregnancy must be as different as the nature of the loss of blood, and it must vary considerably in the different epochs of gestation.

Hemorrhage at the commencement of pregnancy must be treated on nearly the same principles as menorrhagia. Cold should be applied continuously, with a view to produce coagulation, and to lessen the local circulation. Astringent medicines are useful, as in hemorrhages from other mucous surfaces. The tampon may be used, but simply as a mechanical remedy, to prevent the escape of blood, and thus to favour coagulation at the mouths of the vessels. The uterus must be treated altogether as a non-motor organ.

In the early months of pregnancy, when the motor tissue of the uterus has been somewhat developed, hemorrhages should be treated partly on the plan just laid down, and partly with reference to its contractile power. If necessary, in addition to the above modes of restraining hemorrhage, and promoting coagulation, the flow of blood must be arrested by firm uterine contraction. We should choose the best measures for rousing the reflex and direct uterine

action, and that form of action dependent upon its muscular irritability. Much must depend, however, upon whether the ovum has been expelled or not, and upon whether we have, or have not abandoned the idea of preventing abortion.

In the later months of normal gestation, plugging the vagina, both for the sake of its mechanical and reflex motor results, should be practised. The moderate application of cold, on the alternate plan, either to the vulva or to the abdominal surface, will be proper, or the use of a cold or purgative enema. But nothing very heroic can be done, until it has been decided whether hemorrhage is of sufficient importance to bring on premature expulsion of the ovum. This point once settled, either that labour must come on in the natural course of things, or that it is justifiable to induce premature delivery artificially—everything becomes simple. We should prepare for the direct action of the spinal marrow by administering a dose of the ergot, and then we should proceed to puncture the membranes. The latter measure, as I have already described, powerfully invokes the reflex actions of the uterus, and converts the body of the fœtus into an efficient plug. In hemorrhages occurring at the time of parturition, before the delivery of the child, these measures should, in severe cases, be had recourse to without hesitation. In many cases, however, simply rupturing the membrane will be sufficient. This should invariably be practised. I am here speaking of cases in which the placenta is attached to the fundus uteri.

When the placenta is attached to the os or cervix uteri, the hemorrhage which follows the separation of the placenta is called *unavoidable*; when the placenta is planted at the fundus, the hemorrhage attendant on its separation is called *accidental.* There is, however, very little, if any, meaning in these two terms, thus applied. Whenever separation of the placenta has taken place, whether at the os or fundus uteri, hemorrhage is inevitable and unavoidable, unless the uterus is either contracted, or unless some mechanical pressure is made on the separated surfaces.

In the hemorrhage of placenta prævia occurring before the term of natural labour, the great object is to arrest the hemorrhage, if possible, so as to preserve both mother and child until the end of gestation, or, at all events, until the fœtus becomes viable. At the time of parturition there is no safety but in the delivery of the mother, and repressive measures are only necessary until the uterus is in a state to admit of turning. The only modes of restraining or repressing hemorrhage in placenta prævia, when the placenta has begun to separate, are by plugging the vagina, and keeping the circulation as quiet as possible. But the efficient remedy for the arrest of the flooding is delivery by turning. The very operation of turning converts the hand and arm of the operator into a plug, and when the feet are brought down, they and the body of the fœtus in turn plug the os and cervix so effectually, that further hemorrhage is impossible. I am not here speaking of the propriety of saving the child, but of the mere arrest of hemorrhage. When

the placenta becomes entirely separated, or is removed artificially, the head of the fœtus instead of the feet becomes turned into a tampon. Besides the plugging effect, there is, as I have before observed, a large amount of reflex action called forth by turning, or by the substitution of the head of the child for the soft placenta at the os uteri. In turning, the muscular irritability of the uterus is necessarily stimulated. In these cases, the evacuation of the liquor amnii is to be avoided if possible, lest it should render the turning more difficult, and the ergot of rye, and other centric stimuli are improper, for the same reason.

Hemorrhage occurring after delivery, from the entire or partial separation of the placenta, with uterine inertia, calls for all the resources of our art. If the placenta should only be partially separated, that viscus should be entirely detached and removed. This operation, by exciting the muscular and reflex powers of the uterus, will often arrest the hemorrhage at once, When hemorrhage occurs after the complete evacuation of the uterus, the inertia upon which it depends may be either partial or entire. When the inertia is partial, the uterus contracts sufficiently to expel coagula or large gushes of blood from time to time, thus giving palpable evidence of the jeopardy of the patient. But in total inertia, there is no discharge of blood per vaginam; the uterus is too feeble to expel the vital fluid effused into its cavity, and the organ becomes immensely distended and diffuse. The beat of the heart fails or ceases, the temperature falls suddenly, the functions of the brain are suspended, and the patient is suddenly precipitated into the very jaws of death.

In either case, whether the hemorrhage be internal or external, if it has taken place to a dangerous extent, the vital powers must be carefully and instantly preserved, and every possible measure taken to prevent further loss of blood, and to ensure the contraction of the uterus.

The vessels of the uterus should either be compressed mechanically, between the hands, or the venous and arterial flow of blood from the heart should be prevented by pressure on the aorta and inferior cava.

Stimulants (brandy, as the strongest, is the best) should be given by the mouth; the head of the patient should be kept low, as the continued action of the heart will depend greatly on the state of the cerebral circulation. The inferior extremities should be raised, and it has been recommended to place ligatures, or tourniquets, upon the extremities, in order to reinforce the circulation as much as possible. As quickly as may be, the ergot of rye should be given with the stimulants, to ensure the direct action of the spinal marrow upon the uterus. This form of action may be excited even after the uterus refuses to obey stimuli of reflex action.

The reflex actions should be excited by *alternate* cold douching and warm applications to the abdominal surface and vulva, and by the application of the child to the breast, or by causing the nurse

to suck the breasts. The drinks should be given cold or iced, to stimulate the pneumogastric nerve.

The muscular irritability of the uterus should be stimulated either by irritation through the abdominal parietes, the application of galvanism, or the introduction of the hand into the uterus. Where the latter is resorted to, the uterus should never be injured by improper pressure. Irritation, not force, is required.

Here we have exhausted and combined all our most potent remedies; but they will rarely fail, when properly directed, unless, indeed, the patient is already cadaveric when they are commenced. There is no malady in which the sudden danger to life is greater than in uterine hemorrhage, but fortunately there is no contingency in which the resources of art are more powerful or numerous.

Lancet, Dec. 16, 1848, *p.* 656.

158.—*On the Principles of Treatment in Uterine Hemorrhage.*—By Professor MURPHY, University College.—In the mode of arrest, uterine hemorrhage differs essentially from hemorrhages in other parts of the body. In the latter case, the exposed vessels have inherent provisions for retarding the escape of blood. Those of the uterus depend altogether upon its contractile tissue; and hence, as in general hemorrhages one of the great objects of treatment is to cause contraction in the coats of the vessels themselves, so in flooding from the uterus the chief effort is to excite and to maintain the contractility of the uterine fibres. In consequence of this intimate connection between the vessels of the uterus and its muscular fibres —the absolute dependence of the former on the latter—it is essential in the treatment of floodings to pay much more attention to causes that impair muscular contractility, than is required in the treatment of other hemorrhages. The nervous energy of the uterus must be preserved; and for this purpose a line of treatment is called for that would be quite inapplicable in general hemorrhage.

[Professor Murphy illustrates this principle by a reference to the means useful in controlling general and uterine hemorrhage respectively. Thus, *syncope* is an efficient means of arresting general hemorrhage, while it is a dangerous symptom in flooding. *Coagulation of blood* is one of the chief agents by which a lacerated artery is closed; but coagula in the womb are often sources of danger. *Cold* is useful in all hemorrhages; but in flooding we should only refrigerate locally, and so as not to depress the general circulation, otherwise evils would arise.]

Cold, Dr. Murphy says, may be employed, also, on another principle—as a stimulant to the uterus; in this way its beneficial effect is most remarkable. The contractile power of the uterus is often so impaired by severe flooding that it is extremely difficult to excite its action. In such cases, a stream of cold water poured from a height on the uterus will stimulate it to contract; but even when employed in this manner, a strict attention must be given to sup-

port the action of the heart. This principle did not escape the attention of the observant Gooch. He mentions the case of a lady that he attended, in whom, both before and at the time of labour, the force of the circulation was very great: "she was flushed and had a quick pulse." After delivery, she had a most violent flooding; and Gooch remarks that, "After the violence of the hemorrhage was over, although the abdomen was covered with pounded ice, it returned again and again, slightly in degree, yet sufficiently, in the debilitated state of the patient, to produce alarming occurrences of faintness; the uterus too, which had become firm and distinct, became so soft, it could no longer be felt. Finding the ice so inefficient, I swept it off, and taking a ewer of cold water, I let its contents fall from a height of several feet upon the belly; the effect was instantaneous; the uterus, which the moment before had been so soft and indistinct as not to be felt within the abdomen, became small and hard, the bleeding stopped, and the faintness ceased—a striking proof of this important principle, that cold applied with a shock is a more powerful means of producing contraction of the uterus than a greater degree of cold without the shock." We might also add, that this case is an equally powerful evidence of the importance of uterine contraction in stopping hemorrhage.

[*Astringents* and styptics are useful in general, while they have little power in uterine hemorrhage; *stimulants*, on the other hand, are almost indispensable in flooding, but mischievous in general hemorrhage. Stimulants act beneficially in uterine hemorrhage, not only by supporting the powers of the system, but by exciting uterine contraction, which is the great point we should have in view. Speaking of this class of remedies, Dr. Murphy says:]

Opium is another remedy of essential value in uterine hemorrhage, but one whose agency seems to me to be much misunderstood; it is chiefly viewed as a sedative, and its use shunned lest it may prevent contraction of the uterus. The paradox has been proposed, How can opium cause the uterus to contract in hemorrhages, and to relax in other cases; for instance, when given for this purpose in arm presentations? The same medicine cannot produce opposite effects on the same structure. In this query the condition of the nervous system, a most essential element, is totally overlooked, and the influence of opium, when nervous irritability is almost exhausted, is compared with its effect when the same power is excited to the greatest degree. It is assumed that the operation of opium must be the same when the uterus has lost all power to contract, and when it is contracted spasmodically. The question therefore might easily be answered, by stating that opium is both a stimulant and a sedative, and that one effect or the other is produced, according to the relation existing between the nervous energy of the uterus, and the dose of the medicine given. If nervous irritability be not impaired, or if it be increased, a very small dose of opium would stimulate; a larger one would exhibit its sedative effects; but if, on the contrary, that irritability is destroyed, and the uterus atonic, the

same large dose would only act as a stimulant; nor will the sedative property of the medicine be observed until the nervous energy is restored.

The truth of this fact I have frequently observed in cases of extreme flooding. The usual dose (mxxx.) of tincture of opium, had been repeated again and again, before any effect was observed either on the uterus or on the patient. As soon, however, as the nerves were roused to activity, the uterus began to obey the stimuli employed for its contraction; the pulse to return; the respiration to become more easy; the restlessness of the patient less; and, in proportion as nervous influence was established, the sedative effect of the medicine became manifest; thus a sound and tranquil sleep, even for a short time, was the most certain evidence that the contractility of the uterus had returned, and was the most favourable symptom of the patient's safety.

In the use of opium, therefore, strict attention should be paid to the degree of hemorrhage, and its effect on uterine contractility. When the loss of blood is slight, or at least not sufficient to impair the tone of the uterus, a large dose of opium would be dangerous, lest it might act as a sedative, overcome the influence of the nerves, and cause the uterus to relax. When the loss is great, and followed by exhaustion of the uterus, then the very same quantity of the medicine will produce an opposite effect; it will act as a stimulant, and cause contraction of the uterus.

Ergot of rye is perhaps the most popular remedy in uterine hemorrhage, because it acts specially on the contractile tissue of the uterus; it is a specific stimulant, and excites contraction of its fibres. Its popularity, however, has led to a very indiscriminate use of the medicine, and although often successful, it just as frequently has failed in its effect. A great deal of this uncertainty is attributable, it is true, to the variable quality of the drug; no medicine is of more doubtful efficacy; but I think that its failure in extreme floodings arises, in many cases, from a misapplication of it. It is given as a specific, when it is impossible that any specific effect could be produced. In order to excite the action of this, or of any other medicine, the nervous system should be capable of conveying the necessary impressions; but when this is not the case, secale cornutum cannot stimulate the uterus; nevertheless, if it regain its irritability, or if ergot be given before the uterus has lost its tone, in either case its efficacy is undoubted, and it may be usefully employed. Assuming this explanation as true, ergot of rye may be contrasted with opium. When the nerves of the uterus have lost their natural irritability, and the uterus is in a state of atony, opium is the most efficient excitant to its action, because it then acts upon these nerves as a most powerful stimulant; but when that irritability is restored, or if it be only slightly impaired, it acts as a sedative, and may paralyse the uterus. Ergot of rye, on the contrary, is quite inefficient in nervous exhaustion of the uterus, because, so far from acting as a stimulant, it seems to have a sedative effect (at least upon the heart), while its specific action is obvious the mo-

ment that exhaustion is removed. Opium is therefore of the highest value in saving a patient from the consequences of extreme flooding; ergot of rye, in preventing such hemorrhage from taking place. Both remedies may be used in the same case, but one can never supply the place of the other.

Direct irritation of the uterus is a most efficient aid in promoting contraction of the uterus. Friction over the surface has constantly been observed to excite contraction of its fibres; but so slight an irritant frequently fails in arresting hemorrhage, simply because it is only partial in its effects; it does not secure a uniform and equable contraction of the uterus. For this purpose strong compression with one or both hands on the fundus, and irritation not only of the anterior but of the posterior surface of the uterus, is essential to secure the object. It is often necessary to maintain this state by a continuance of very strong pressure afterwards, which we shall have again to refer to. The introduction of the hand into the cavity of the uterus is a practice founded on the same principle. This manipulation causes great irritation—sometimes too great irritation—and, therefore, requires prudence and caution in its adoption. In cases of great exhaustion I have known it followed by convulsions and death, but in other instances it proved the only means (accompanied by external pressure) of causing an uniform and efficient contraction of the uterus. Much depends on the condition of the patient. When it is adopted as a "dernier ressort" to excite a flaccid uterus, the shock of the operation sometimes overcomes the patient, already in the last stage of exhaustion, and she never rallies. Such an application of this means is, therefore, extremely dangerous; but when the uterus is in a semi-contracted state, possessing a certain degree of contractility, the hand may be introduced with benefit. The uterus which is often only partially and irregularly contracted, is restored to its proper order of contraction; and when the fundus is supported by external pressure, the hand is expelled, and the hemorrhage ceases. Dr. Gooch recommended the introduction of the hand for another purpose; he supposed that the placenta might be compressed against the walls of the uterus, and hemorrhage thus stopped. I confess that I cannot see the advantage of this practice; passing the hand into the cavity of the uterus is no trifling operation; but if you undertake it—if you succeed and reach the placenta—if it be detached—why not take it away.

[After mentioning *electricity*, as suggested by Dr. Ramsbotham and introduced by Dr. Radford, as a means of contracting an atonic uterus, Dr. Murphy refers to *compression of the abdominal aorta*, proposed by Baudelocque. He says:]

We cannot well compress the aorta, without also compressing the cava and bifurcation of the iliac veins, which seems to me of equal if not of greater importance, because the veins are a great source of flooding, and, if we can prevent the regurgitation of blood from these great trunks into the uterine veins, an important means of prevention is accomplished.

[Lastly, Dr. Murphy mentions *transfusion*, which he thinks ought to be tried in extreme cases, when there is no reasonable hope of doing any good by other means.]

Medical Gazette, Dec. 1, 1848, *p.* 912.

159.—*On Accidental Hemorrhage.*—By Professor MURPHY, University College.—*The treatment* must be prompt and decisive. Accidental hemorrhage usually occurs in the first stage of labour, when the membranes are unbroken, and the liquor amnii prevents the uterus contracting about the body of the child. In order, therefore to control flooding, the uterus should be made to contract as much as possible, and coagulation promoted in the spongy structure of the placenta: both objects are accomplished by rupturing the membranes, because the uterus contracts on the body of the child, and the placenta being compressed between both, the blood is prevented escaping so freely from its uterine surface. This effect may be rendered more perfect by using means to increase the tonic contraction of the uterus, which rupturing the membranes alone will not always accomplish. Therefore, ergot of rye, or the electric current, may be used; a drachm of the former infused in a wineglass of water, may be given alone, or, what is better, in combination with opium. Thirty or forty minims of tincture of opium may be added to the infusion, and in proportion as exhaustion increases, larger doses of opium may be repeated. When you wish the aid of the electric current, the electro-magnetic apparatus should be employed, and currents passed either transversely or in the longitudinal axis of the uterus: rods, holding sponges moistened in a saline solution, are connected by wires to the apparatus, and may be applied to any part of the abdomen; a sponge may be introduced within the vagina, and connected in the same manner with the battery: by these means currents may be made to pass in any direction. The only objection to this mode of exciting the uterus is the delay which might arise in preparing the instrument. Entrust themanagement of these details, therefore, to an assistant, and do notlose a moment in carrying out the treatment of the case, independently of this agent.

[Speaking of the practice of *plugging* the vagina, as recommended by Leroux, Dewees, and Burns, Dr. Murphy says:]

With regard to this point of practice, I have no hesitation at all in deciding in favour of rupturing the membranes; I have never found it fail, but the plug employed as a substitute is evidently liable to grave objections: a coagulum in the vagina can have no effect on vessels in the body or fundus of the uterus: are we then to wait until the coagula increase so as to stop these vessels? If so, the placental side of the uterus must be wholly filled with coagula, and even then it is doubtful whether they could prevent the hemorrhage. You may, therefore, plug the vagina, and fancy the hemorrhage has ceased because no more flows externally, but the symptoms of exhaustion rapidly accumulating will soon convince

you of your error. If the membranes are ruptured, the vagina may then be plugged, as a temporary expedient, because, although some coagula may collect in the uterus, the quantity must be small, and the amount of blood lost would be less than if it flowed uninterruptedly from the vagina; but even on this topic I cannot speak without some hesitation. I confess I like *to see* whatever discharge may flow from the uterus, nor do I feel satisfied so long as there is the least trickling of blood. If the vagina were plugged, I could not tell whether the hemorrhage had completely ceased, and might be deceived by the absence of all external appearance of hemorrhage.

[*Turning* was formerly a universal practice in cases of accidental hemorrhage. It is now very rarely resorted to, and Dr. Murphy thinks it will very seldom be found necessary. *Stimulants* must be given, even largely: and if all means fail, transfusion may be cautiously resorted to.]

Medical Gazette, Dec. 1, 1848, *p.* 917.

160.—*On Unavoidable Hemorrhage.*—By Professor MURPHY, University College.—[Even in cases of placenta prævia, Dr. Murphy observes, there are natural processes which tend to the arrest of the hemorrhage. He says,]

Let us suppose a case in which the placenta is completely attached to the mouth of the uterus, and that labour has just commenced: what takes place? The first effect of the pains must be to break the vessels passing from the margin of the os uteri into the maternal portion of the placenta. The curling arteries of the uterus are closed by coagula formed in their torn coats; they cannot, therefore, pour out much blood; such is not the case, however, with the large uterine veins when they are broken across: one fragment is an opening that communicates with the large network of veins in the uterus; the other leads directly into the cavernous structure of the placenta: through both these orifices blood may be discharged, being, in the former case, venous blood, flowing in a contrary direction to its course from the uterus, and in the latter, arterial blood, passing directly through the cavernous structure of the placenta, and escaping from the broken openings on its surface. Such being the sources of hemorrhage, does the progressive dilatation of the uterus increase or control the discharge? If the former were true, nature has committed a capital error; she sins against her great law to do nothing in vain, and gives life only to destroy it. If the latter be the case, she is consistent with herself, and even here establishes the possibility of life being preserved by her own efforts. We shall endeavour to prove the latter hypothesis, and demonstrate to you the manner in which dilatation of the uterus controls unavoidable hemorrhage. Let us examine the effect of this dilatation on each source from which blood flows. The arterial current through the placenta is in direct proportion to the number of arteries that supply blood to

the cavernous structure: but as the dilatation of the uterus increases, this number diminishes, because they are successively broken off from the placenta, and when the dilatation is completed, the placenta being detached, hemorrhage from this source must cease, as the supply is cut off. This provision, however, would always fail if it depended upon the complete dilatation of the uterus for success. A certain period of time (some hours) may be occupied in effecting it; and if an uninterrupted current of arterial blood were flowing from the placenta for a very much shorter period, the woman would expire long before the placenta was separated. Some means of retarding or interrupting the current is necessary: and here we find the *importance of the reticulate structure of the placenta:* the blood moves slowly through it, and if it accumulate there is a tendency to coagulate,—it acts like a sponge. Any cause compressing the placenta, which may prevent the free discharge of blood from these orifices, will cause an accumulation and consequent coagulation of blood in the spongy structure, thus preventing further hemorrhage. The force of the fundus uteri acting on the cervix also acts upon the placenta, and exercises a pressure upon it proportionate to the strength and frequency of the pains. Thus, if the uterus retain its power, and is in full action, the tendency of its contractions is at the same time to cause and to arrest the discharge of blood from the placenta; to cause it, by breaking the connection with the uterus; to arrest it, by pressure on the whole mass of the placenta. Did hemorrhage, therefore, depend upon this source alone, it would be much more under the control of treatment than we find it. Our chief object then would be to increase the counter-pressure on the placenta from the vagina, so as to cause coagulation in its structure. We have, however, to consider another source of flooding, that derived from the exposed veins of the uterus. This venous blood regurgitates from the general venous system, and would flow freely and most dangerously so long as the cervix uteri remained expanded, and no contraction of its tissue took place, because the venous canals, and their openings of intercommunication, are fully dilated; and if any of these be exposed on the surface of the uterus, profuse venous hemorrhage would be the result, so long as they remain in this state. But the dilatation of the os uteri is in fact the contraction of the cervix: the womb would not open unless the tissue of the cervix contracted upon itself. I do not assume that this contraction of the cervix is a muscular effort, as some suppose; it is sufficient for this explanation to admit that the cervix possesses contractility of tissue. Now this contraction of the cervix has precisely the same effect upon the veins here, as the muscular contraction of the fundus has upon them in other forms of hemorrhage; the sinuses (as they are called) are more or less closed; the veins are compressed; the temporary valves set up, and thus the regurgitation of blood from this source prevented. As the dilatation of the uterus advances, the whole of the exposed portion of the cervix

and placenta is directly compressed by the head of the child; an additional aid in preventing the escape of blood.

The natural means, therefore, of checking unavoidable hemorrhage, is the complete separation of the placenta from its attachment to the cervix of the uterus, because by this means all the uterine arteries are broken off from the placenta, and the veins are closed by the dilatation of the uterus which is necessary to effect the separation. If we have rendered the design of nature sufficiently intelligible, you can readily perceive why she often fails in accomplishing her purpose, and why these hemorrhages are so dangerous. In order to effect the dilatation of the uterus, and carry out this intention, the pains must be vigorous, and the contractile power of the uterus unimpaired: but unfortunately, in too many cases this essential element is wanting. Slight hemorrhages may have occurred before labour, so as to weaken the tone of the uterus, or, what is more frequent, the first opening of the womb, the first rupture of the blood-vessels, is followed by such a violent gush, that the patient is exhausted, the action of the uterus is enfeebled, and the pains consequently weak and inefficient. As they proceed, and slowly separate the placenta, gushes of blood from newly ruptured vessels accompany every pain, increasing the exhaustion of the patient and the atony of the uterus, until at length the uterus has lost all power of accomplishing this object, and the patient expires. Such hemorrhage is equally fatal to the child, because the fœtal blood is deprived of all influence from the maternal circulation; the necessary changes are not carried out, it receives no nutrition, and dies equally exhausted. The child is generally said to die from hemorrhage of the fœtal vessels; but the fœtal vessels are not always ruptured, which is a necessary condition; however, it presents the same appearances as if they were: and hence hemorrhage is the cause usually assigned for its death. You will perceive, therefore, that nature has not failed to provide against the effect of this malposition, but that her efforts are generally rendered useless, because exhaustion is so rapidily induced in the patient. She is not, however, always so unsuccessful: cases are recorded where the dilatation of the uterus was accomplished, the placenta detached, hemorrhage arrested, and the patient saved by the provisions of nature alone. Professor Simpson records 141 cases, in the majority of which the placenta was expelled safely by the natural efforts: several have been since reported, a sufficient proof of the correctness of our position.

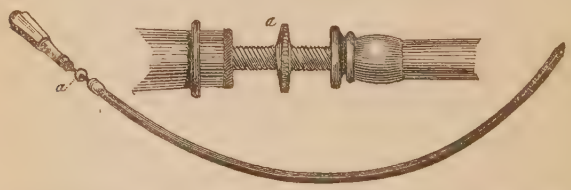
[After speaking of the necessity of promptitude and decision in the treatment, Dr. Murphy proceeds to consider the most favourable cases of unavoidable hemorrhage, namely,]

Cases where hemorrhage is only commencing, and where you are in sufficient time to put any treatment into effect you think proper: what is your chief object? If possible, to save both the mother and child. You know, when the deluge comes, that the child is lost, and it is very doubtful whether the mother may be saved.

To preserve the child, it is necessary to remove it from the uterus. To save the mother, the connection between the placenta and uterus must be broken off. If the former were done incautiously, the mother might be sacrificed. If the latter were hastily carried into effect, the child would be destroyed. We must avoid falling into either of these errors, and act upon correct principles in our treatment. To accomplish the objects we have in view, it is necessary to turn and deliver the child; but this cannot be done until the dilatation of the uterus is in some degree advanced, or at least until the os uteri is quite dilatable. *Never attempt to force open the mouth of the womb* for this purpose. Our first step is therefore to use the most efficient means to arrest the discharge while the uterus is dilating. This may be effected, 1st, by directly compressing the placenta; 2nd, by maintaining and increasing, if necessary, the action of the uterus.

[Compression of the placenta is effected, 1st, by plugging the vagina, for which purpose Dr. Murphy recommends balls of tow loosely rolled up, and supported by a napkin soaked in ice-water and applied to the vulva; and 2nd, by puncturing the membranes and allowing the liquor amnii to escape.]

For this purpose, (says Professor Murphy), a long gum elastic catheter of the largest size may be made, so as to have a pointed stilette to pass quite through it: this can easily be prevented passing beyond a certain distance, by a button or screw at the end opposite the point.



Gum elastic catheter, with spear-pointed stilette passing through it.

a Screw-nut to sheath the point.

This instrument, having the point sheathed, may be passed within the os uteri, between the placenta and the cervix; and when it is quite above the placenta, the point can be pushed forward through the membranes; the stilette being then withdrawn, the liquor amnii will flow away chiefly through the catheter. This operation should, of course, precede the use of the plug. The source of hemorrhage being thus secured, we must direct our attention to the second object.

[In the fulfilment of the second indication, that of maintaining or increasing uterine action, if there is not much exhaustion or nervous irritation, we may give a *moderate* dose of ergot. But usually the hemorrhage is of such amount as to lead to great exhaustion.]

All the aids, therefore, to support the general circulation, and to remove nervous depression, must be called into requisition, in order that the action of the uterus may continue: stimulants, with opium, may be given internally, the temperature of the extremities maintained by wrapping them in warm blankets, and applying hot jars to the feet. A free circulation of pure air in the apartment should be secured, and the patient kept completely in the recumbent position. While these steps are being taken to arrest the consequences that you know will follow such symptoms, the delivery of the child, the most important one, will, of course, occur to you: the only question is, when should it be done. I would say, the moment symptoms of exhaustion begin to appear: if you wait for their full development, it would be better not to venture upon such an operation: and if such symptoms are not present, it would be desirable to delay a little, in order to give the uterus time to dilate sufficiently to pass the hand easily within it. If, however, the patient shows evidences of commencing exhaustion, you must deliver at once.

Turning the child is at any time a serious operation, and in no case more so than under the circumstances we are at present considering: not because the operation is then peculiarly difficult; on the contrary, in consequence of hemorrhage, the uterine fibres offer less resistance than usual to the introduction of the hand, and the accoucheur has consequently much less difficulty than when the uterus is strongly contracted on the child, but it is an operation attended with considerable danger, from the shock the patient receives. The records of midwifery afford ample testimony of the fatality of turning in unavoidable hemorrhage, chiefly because the patient was too much exhausted to support the shock of the operation. She either died immediately, or in a few hours afterwards. In the case supposed, however, no such objection exists. You proceed to deliver the moment exhaustion shows itself, or before that, if the os uteri is sufficiently open for the purpose. If the labour has continued for some time without exhaustion in the patient, the outer plugs may be removed, and a vaginal examination cautiously made: you will generally be able to ascertain the degree of dilatation without disturbing much the plug in contact with the placenta: if the os uteri is one half dilated, you may deliver.

[Dr. Murphy then proceeds to speak of cases in which the practitioner is not sent for early, but finds the patient suffering all the worst consequences of flooding.]

When the patient is in extreme exhaustion.—If you were to adopt the same practice as that we have just described, in such a case as this—if you were at once to turn the child and deliver—the fate of the patient would be sealed. The late Dr. Rigby justly observed, that "the success of turning depends upon its being done before the patient has lost too much blood," and the fatal effects of performing it too late, when the patient is extremely exhausted, will be best understood from a few examples.

[After relating a number of examples in which turning was performed while the patient was in a state of great exhaustion, and death followed; and also cases in which delivery was accomplished by the natural efforts, and the patient recovered, Dr. Murphy says:]

I trust we have succeeded in pointing out to you the danger of turning the child when your patient is extremely exhausted—in proving to you that, even in these cases, nature sometimes succeeds in arresting the flooding by the separation of the placenta—that when this happens hemorrhage ceases, even where the action of the uterus is suspended. It remains for us to consider whether, in these cases, artificial separation of the placenta may be put in practice. A question springs naturally from this discussion, which I shall not now enter upon—How can hemorrhage be arrested by the separation of the placenta when the uterus does not contract, or at least when we have no evidence of its contractions by the presence of pains? I must leave this, with other problems connected with the circulation, for some future inquirer to resolve. For the present I shall let it remain with that which some time since puzzled the surgeon so much, viz.—When an aneurismal artery (the carotid for instance) is tied on the side of aneurism distant from the heart, why should the aneurismal sac diminish rather than increase? Perhaps the same principle may explain both phenomena.

[Dr. Murphy gives the following summary of the treatment in unavoidable hemorrhage:]

1st. *In a case where no exhaustion has taken place*, or where it is but commencing, to turn and deliver the child the moment the os uteri is sufficiently dilated. If it be dilatable, (and this is generally the case) you may pass through it, although it be not larger than a crown-piece. If it be not so, by properly compressing the placenta, and using other means to support the circulation, you will prevent exhaustion increasing until you can deliver the patient.

2nd. *In a case of extreme exhaustion*, with frequent fainting, fluttering pulse, rapid, laboured, perhaps stertorous respiration, blowing of the cheeks, jacititations, incoherence, and general pallor and coldness of the surface, do not attempt to turn the child; rather separate the placenta, and leave the child undisturbed, until some decided reaction takes place. I am aware that this rule is a direct infringement on the principle of those who look with horror on the risk of allowing a woman to die undelivered. It appears to me to be the only chance of preventing her death.

3rd. *When the os uteri is rigid*, use every means to compress the placenta, and to increase the action of the uterus, so as to give it time to dilate, and to enable you to turn; but if before that, hemorrhage so increase as to cause a dangerous degree of exhaustion, separate the placenta, rather than force your hand and arm into the uterus.

Medical Times, Dec. 16, 1848, *p.* 999, *and Jan.* 12, 1849, *p.* 47

161.—*On Post-Partum Hemorrhage.*—By Professor MURPHY, University College.—[Post-partum hemorrhage may occur either before or after the expulsion of the placenta. In the former case, its causes are three, inertia of the uterus, irregular contraction of the uterine fibres, and morbid adhesion of the placenta. Professor Murphy observes:]

Inertia of the uterus is equally the cause and the effect of hemorrhage. If the uterus become exhausted from long-continued efforts to expel the child, if it be enfeebled by any constitutional cause, hemorrhage is the consequence—at first perhaps slight, but as the debility of the uterus increases it soon amounts to a profuse flooding: the patient is placed at once in extreme danger, and the practitioner is in equal difficulty to cause an efficient contraction of the uterus. This want of contractile power in the uterus becomes the chief object of his attention.

The symptoms that characterize this condition of the uterus are very different from those that attend a mere suspension of its action after labour. The placenta is often retained simply because the uterus is not sufficiently excited to expel it, and the term "inertia" is as frequently misapplied in the latter as it is correctly used in the former case. You should be careful, therefore, not to confound the one with the other, but to recognize true inertia as soon as it presents itself: you may do so before any hemorrhage takes place, even when the child is being expelled. The fundus of the uterus has not its usual firm feel under the hand: it seems spongy or like dough, and is larger than it ought to be, because it very seldom contracts to its full extent. After the delivery of the child, when the uterus generally remains contracted, it will not do so. You may have followed the contracting uterus with the hand, moderately compressing it, and in a short time you find that it has eluded your grasp, and cannot be felt. Strong frictions over the lower part of the abdomen may again excite its action: but it is only for a moment,—again it is lost. While this want of tone may be observed in the uterus, a corresponding amount of constitutional irritation may be noticed in the patient. The pulse is increased in frequency, and assumes the jerking hemorrhagic character; the patient is watchful and restless; complains of sinking, and does not experience that relief from the termination of her sufferings that is usual after delivery. All these symptoms may precede any hemorrhage, and should be most carefully watched: they are the monitors of what is approaching. Hemorrhage generally begins with a slight draining from the vulva, just sufficient to soil the napkins that are applied, but in a short time, if no means for prevention are used, the stream rapidly increases to a torrent, deluging the bed, and forming a pool on the floor beneath. If the attendant is not on his guard, this may be the first notice of danger, because the patient is sometimes too much exhausted to give any intimation of her condition; she lies on her side in a listless, dosy state: syncope may follow, and hemorrhage for a moment cease, but it soon returns with the pulse, a violent gush of blood places the pa-

tient at once "in extremis:" a more prolonged syncope returns, from which she may never recover. Sometimes a fit of convulsions precedes dissolutions. In this description we have assumed that there was either none, or at least a very inefficient assistance, because I know of no case in which well-directed treatment is more effectual in arresting fatal consequences; by coolness and decision you may save your patient absolutely from the jaws of death: but if placed on your guard by premonitory symptoms, you ought generally to avert such extreme symptoms presenting themselves. I say generally, because there are some melancholy exceptions in which a feeble constitution is irrecoverably sunk by the first discharge.

The treatment of such cases must be directed, 1st. To restore the tonic contractile power of the uterus. 2d. To remove the placenta. 3rd. To prevent, as far as possible, any subsequent relaxation of the uterus.

In order to accomplish the first object, you must endeavour, by every means in your power, to support the general circulation, which every symptom points out to you is struggling to maintain itself. Without attention to this, merely local treatment would be utterly inefficient, and might possibly increase the danger. If there be great exhaustion, the patient should be given a drachm of tinct. of opium in brandy: this may be repeated in more moderate doses, until the pulse becomes steady. If the stomach be very irritable, and reject this, it will sometimes bear broth when taken cold, and morphia may be substituted for tincture of opium. Smellie used to give portable soups, dissolved in water. The patient should be kept in a perfectly horizontal position, which is not very easy when exhaustion is commencing. The arms and legs should be wrapped in hot flannels, the curtains drawn back, the window raised, and a free circulation of air secured in the apartment. Locally, every means must be employed to retard the force of the circulation in the uterus. The most convenient mode, I think, is to have a bucket containing flannels, over which may be thrown lumps of ice, and a sufficient quantity of water poured over the whole. These flannels may be wrung out, and applied from time to time to the hips and vulva. At the same time that these means are being carried into effect, the strongest pressure should be maintained on the fundus uteri, to prevent its relaxation. The success of your treatment becomes evident when you feel the fundus first becoming distinct, and then more firm, under the hand. In many cases the pressure is sufficient to cause the expulsion of the after-birth, but if not, it becomes your duty, in this favourable opportunity,—

2ndly. *To remove the placenta.*—For this purpose, let one hand still compress the fundus, or assign this duty to an assistant, clearly explaining what is to be done, and then pass the hand into the vagina to the os uteri: sometimes by drawing down the hand again slowly, the back of it being pressed strongly against the posterior wall of the vagina and the perineum, the uterus is excited to contract and expel the placenta into the vagina, from whence it may

be removed. If not, draw down the funis to its full extent, as far as it will go, and let the hand in the vagina, guided by it, press forward into the uterus. The fingers formed into a cone will readily dilate the os uteri sufficiently to admit the hand; and here, again, it sometimes happens that the act of dilatation will excite a sufficient contraction to expel the placenta; if not, you must proceed; but, as a precaution, it would be well to give the patient a full dose of opium previous to entering the cavity of the uterus: when the placenta is reached, do not at once seize it in order to draw it down, rather seek to pass the hand above it, towards the surface of the cavity of the uterus. This portion of the uterus is now placed between the introduced hand and that which compresses it externally through the abdomen; by increasing this pressure, the irritation very seldom fails in causing the uterus to contract; the moment this is observed, let the hand be slowly withdrawn, having the whole placenta within it, and let a strong pressure be made on the fundus uteri externally. Thus, the placenta may be safely withdrawn, and if the uterus be properly secured, no further hemorrhage will take place. Our next object is, therefore, to do this, and

3rdly. *To prevent, as far as possible, any subsequent relaxation.*—When contraction of the uterus takes place, and it is made thus to expel the hand and the placenta, from that moment the compressing force cannot be taken off from the fundus, because there is a constant tendency in the uterus to relax again, and if so, hemorrhage is renewed: to prevent this, it is often necessary to press very firmly with both hands on the fundus, and to continue this pressure for some time: if fatigued, an assistant may continue it; but you must be particularly careful that he understands your object, because I have seen more than one instance where pressure was made everywhere but where it should be: but when the uterus is properly compressed it becomes an extremely efficient mode of preventing its relaxation. In order to insure this effect, by the continuance of the pressure, the abdomen must be very carefully bandaged.

[After speaking of flooding occurring from irregular contraction of the uterus and morbid adhesion of the placenta, Dr. Murphy makes the following observations on the other variety of post-partum hemorrhage. He says:]

Hemorrhage after the separation of the placenta may depend upon inertia of the uterus, an over-excited circulation in a plethoric patient, or upon mismangement. The last is by far the most frequent cause: the patient may be too soon disturbed after her delivery, for the purpose of changing the dress or bed-clothes, or her friends may keep her in a constant state of excitement by their kind but too officious congratulations. The result is flooding. Again, if she escape these dangers immediately after delivery, your patient may be allowed perhaps on the third or fourth day to get out of bed: the circulation is again excited in the uterus, still very large and easily distended, and hemorrhage is the consequence. You are not

even safe on the tenth or fourteenth days. One of the most alarming hemorrhages I ever had to treat occurred on the tenth day after delivery.

Medical Gazette, Jan. 12, 1849, *p.* 48.

162.—*On Hemorrhage from the Umbilicus after the Separation of the Funis.*—By Ed. Ray, Esq.—[Mr. Ray relates a case of this kind; a lady had six children, three males and three females; the males all died from umbilical hemorrhage after the separation of the funis; the females had no hemorrhage. With regard to the sixth child, a male, on the third day from birth it became jaundiced, and hyd. c. cretâ with rhubarb, &c., was given.]

On the 6th day the cord separated from the umbilicus; there was nothing to remark beyond the jaundiced and somewhat inactive state of the child. From this time I undertook the dressing of the navel, and applied night and morning zinc ointment dusted freely over with powdered matico leaves. Suspecting the mother was not a good nurse, a wet nurse was with some difficulty procured. A small granular point alone remained unhealed *within* the umbilical pit on the 9th day. On the morning of the 10th day a slight stain of blood was seen on the dressing being removed from the umbilicus; the under surfaces of the matico leaves were now applied over the umbilicus, and a compress over them. At 3 P.M. I was sent for, the child being faint, and found on removing the bandage from the abdomen, that the compress was sodden with blood; firm conical compresses of lint were made so as to fit *into* the umbilical depression, and firmly retained after being moistened with Ruspini's styptic, but did not appear much to control the hemorrhage; one wetted with oil of turpentine was then similarly applied, and to all appearance checked it, but in less than two hours it recurred, and it was evident to Mr. Peppercorn (who was present) and myself, that pressure, with or without styptics, could not be depended upon for controlling it; on watching the blood it was seen to ooze in a fine undulatory stream from left to right, and in a direction upwards, showing that it proceeded clearly from the left umbilical artery; it was of a very light vermilion colour; coagula were scarcely traceable on the linen, &c., which had more the appearance of being stained by a thin-coloured fluid, than the usual stiffened stain of blood. We decided upon encircling the umbilicus with a double ligature introduced by a curved needle, but were shortly after compelled to surround it with a single ligature, as the blood began to ooze after a few minutes from the needle's punctures: this effectually controlled it, but the child was already blanched and losing temperature; it was now kept warm and quiet, and frequently supplied with small quantities of breast milk with a spoon, as it had not the power to suckle. On the 11th day it was still weaker; no return of hemorrhage; could not suckle; nutriment could be got down only in very small quantities; two small petechial spots on the left arm; skin yellow and cold; child quiet, and breathing almost imperceptible; motions of pasty consistence and almost white; ordered beef-

tea and milk to be administered if possible, beef-tea enemata, and small doses of sesquicarbonate of ammonia sheathed in mucilage every hour. The child continued gradually to sink, and died on the 12th of May, the 12th day after its birth, 6th after separation of the funis, and in about 46 hours after the commencement of the bleeding.

[After death, it was found that the umbilical bloodvessels were not occluded, neither were the ductus arteriosus nor the ductus venosus. Mr. Ray observes:]

As to the mode in which the fœtal vessels become obliterated, I am at present disposed to believe that it is by the gradual contraction of their coats, and not by the formation of a clot within them. In the few children I have had the opportunity of examining under the age of one month or six weeks, I have not detected any trace of a fibrinous plug, but have generally been able to trace a canal in the vessels. I find upon inquiry, that is not uncommon for a *little oozing* of blood to occur after the immediate separation of the funis, which either spontaneously or readily subsides with compression; and it is not a little singular that I have seen this *slight oozing* in two *male* infants of an ill-fed poor woman, who nearly lost a former *male* child from hemorrhage from the funis, occurring some hours after birth. Hemorrhage from the umbilicus I believe to be prevented by the contraction and the retraction of the vessels (after the separation of the funis), and by the subsequent sealing by granulation and cicatrization. The formation of the umbilical depression is probably aided by this retraction, and some degree of internal traction on the remains of the umbilical vein and urachus being produced by the respiratory movements and distension of the bladder.

[After referring to a number of published cases and some unpublished ones, which seem to show that umbilical hemorrhage is almost, if not altogether, confined to male children, Mr. Ray proceeds to suggest treatment. After referring to the importance of attention to the health of the mother, he says:]

After the separation of the funis, I would suggest the application of collodion before applying the usual compress of soft linen, and urge the daily superintendence of the accoucheur: I allude, of course, only to those cases where the disposition to this form of hemorrhage is known or suspected.

Curative Treatment.—Should the hemorrhage, notwithstanding our precautions, occur, the administration of one or other of the remedies serviceable in purpura—as steel, gallic acid, &c., might, perhaps be of some avail; but mechanical means must be adopted for *immediately* checking it; and in the employment of those means there must be *no delay*,—no loss of time by repeating an unsuccessful attempt, as every drop of blood is of vital importance to so young an infant. Should such a case occur to me again, I should first attempt to control the bleeding by pinching up the umbilicus between the finger and thumb in the same manner as I should pinch up the integument to control the bleeding of a leechbite,

maintaining that pressure, if successful, and coating the umbilicus, first filled with cotton wool, over with collodion, or employ plaster of Paris, as suggested by Dr. Churchill, if at hand. But should it not be thus readily controlled, I should produce an eschar by means of a probe, director, or skewer heated to whiteness, coating afterwards with collodion. If unsuccessful, I should then proceed to tie the bleeding vessel, and adopt the mode suggested to me by Mr. Hilton, first introducing a fine probe into the bleeding vessel, to act as a guide for the incision, as well as to diminish, perhaps, the loss of blood. I do not recommend the immediate application of the ligature in these cases, from the impression that they are so allied to the cases reported as illustrative of the hemorrhagic diathesis; and, consequently, deem it possible that hemorrhage of a dangerous, if not a fatal character, might arise from the wound necessary for its application.

Medical Gazette, March 9, 1849, *p.* 423.

163.—*On Encysted Placenta.*—By Dr. W. Tyler Smith.—[The contraction of the os uteri which causes this kind of retention of the placenta, is of an *active* characte; *sphincteric contraction*, Dr Smith calls it. He remarks:]

In treatment, it is of considerable importance to deal promptly with these cases. The longer the os uteri remains contracted, the more difficult will its dilatation, so as to admit of the extraction of the placenta, become. If the placenta can be felt close to the os uteri, gentle but firm traction of the cord, held as near as possible to its root in the placenta, should be used, so as to convert the placental mass into a dilator. If this plan should not be successful, the os uteri must be slowly dilated by the fingers, so as to admit the hand or fingers, according as the placenta may be required to be detached from the uterus, or merely withdrawn from the cavity. The utmost gentleness consistent with the necessary force should be employed; and if necessary, any threatening of convulsion or laceration should be prepared for by bloodletting. If the patient's mind should be excitable, or the dilatation of the os uteri should be painful, an opiate is of great use; but it acts rather by soothing mental emotion and allaying pain, than by reducing the spasm of the os uteri. We can often beneficially assist the efforts of traction of the umbilical cord in dilating the os uteri, by gentle pressure exerted externally upon the abdominal surface at each recurrence of the uterine contractions; sweeping the placenta as it were into the pelvis and towards the os uteri, by the hand, while steady traction of the cord is being kept up.

The foregoing remarks apply to cases in which the placenta is either wholly adherent to the uterus, or the uterus at large is so firmly contracted upon the separated placenta as to prevent internal uterine hemorrhage. Cases, however, occur, in which spasmodic closure of the os uteri is attended with separation of the retained placenta, and inertia of the body and fundus. In such cases, dan-

gerous internal hemorrhage is inevitable, and the removal of the contraction of the os uteri becomes quite of secondary importance to the arrest of the hemorrhage. Our first object here must be to excite such an amount of uterine contraction as to stay the loss of blood. In all cases where the first steps taken for the dilatation of the os uteri, which of themselves tend to produce uterine contraction, are ineffectual, the uterine inertia should be treated most energetically *per se*, without any reference to the state of the os uteri.

Lancet, Nov. 25, 1848, *p. 575.*

164.—*On the Treatment of After-Pains.*—By Dr. W. Tyler Smith.—It consists in the removal of coagula from the vagina and os uteri, the avoidance of all the extra-uterine causes of uterine contraction, and the application and administration of opiates. Gentle friction with the linimentum opii over the abdomen is often very useful; but I have found still greater benefit from the application of this liniment to the mammæ. By a reflex action, it allays the excessive sensibility of the uterus, when thus applied. Probably, when applied to the abdominal surface, its sedative influence is also of a reflex kind. The sensorial connection between the nerves of the abdominal surface and the abdominal and pelvic organs is very striking in some diseases. For instance, in peritonitis, there is actual and intense tenderness of the skin of the abdomen in addition to the tenderness of the subjacent peritonæum. This is a slight digression; but I mention it to show the reflex sensory connection between the surface and internal organs, which, in the case of after-pains, may be made of considerable therapeutic service.

In excessive after-pains, without hemorrhage, without the presence of coagula, and in the absence of other signs and consequences of inertia, the infant should never be applied to the breast for some hours after delivery; not, in fact, until the uterus has become calmed from its state of morbid excitability. Early and constant stimulation of the breasts by the child is a common cause of irritable uterus for many days after delivery. This agent, so salutary in all cases of impending inertia, is often made, unnecessarily, a cause of miserable suffering, at a time when the patient is little able to endure it, and without any counterbalancing good, if the uterus has contracted healthily. I repeat, we want no more than safe contraction; every after-pain beyond this point is both unnecessary and mischievous.

Ibid, p. 576.

165.—*On Inversion of the Uterus.*—By Dr. W. Tyler Smith.—[Dr. Smith thinks that this accident never arises from mechanical traction of the cord, merely. He says:]

From the best consideration I have been able to give the facts of inversion, I am persuaded that it depends in *all* cases mainly upon an *active* condition of the uterus. Where it takes place without

any mechanical interference, there can be no doubt of the preternatural and perverted activity of the uterus. But I am convinced, that even in cases where the placenta is attached to the centre of the fundus, and when the cord is drawn through the vagina with any amount of force likely to be exerted by an accoucheur, it is not a mere mechanical displacement which produces the accident, but the irritation of the fundus uteri, by traction, excites contraction of the fundus, thus producing that contraction and descent of the fundus uteri, which is the first stage of the accident. The common opinion has very naturally arisen from observing, in some cases, that the fundus uteri, when the placenta is firmly attached, follows the advancing cord, while traction is being used. According to my view, the depression of the fundus uteri, even in these cases, is not a simple yielding of the part, according to mechanical principles, but an active contraction, excited by the irritation of the fundus uteri by the traction of the placenta.

To pursue the steps by which complete inversion is produced. There is, first, cup-like depression of the fundus uteri; coincident with, or immediately following upon, this depression, there is hour-glass contraction of the body or lower portion of the uterus. The annular contraction of the body of the uterus grasps the introcedent fundus as it would a foreign body, and carries it downward, for expulsion through the os uteri, the os uteri being at this time either in a state of inertia, or actively dilated, the same as at the end of the second stage of labour. After the inverted uterus has passed through the dilated os uteri, this part of the organ becomes contracted, preventing reversion from taking place. Thus, there is, first, depression of the fundus uteri, with annular or hour-glass contraction of the body of the uterus, and dilatation of the os uteri. Next, there is intus-susception of the fundus by the body of the uterus. Lastly, complete inversion occurs, with contraction of the os uteri upon the inverted organ. If we wished to describe this accident in three words, they would be,—introcession—intus-susception—inversion. The displacement may not be complete; it may in some cases stop at introcession; in others, at intus-susception, and then return to the natural state; or it may remain intus-suscepted. Inversion produces violent disturbance of the nervous system, and is frequently attended by alarming hemorrhage. But the symptoms of the intus-suscepted uterus are still more violent. The strangulation of the fundus is almost as severe a shock to the system as actual rupture. In inversion, the hemorrhage is somewhat arrested by the os uteri acting as a tourniquet to the uterus. We may compare perfect inversion of the uterus to intus-susception of the intestinal canal, only that the intus-suscepted portion of intestine is not protruded externally. Probably, many cases of prolapsus ani should be called inversion of the rectum rather than prolapsus.

Inversion generally occurs quickly after the delivery of the fœtus, between the expulsion of the child and the expulsion of the placenta. I have known it to take place after the death of the

mother, and after rupture of the uterus had occurred. In the latter case, the fœtus was passed into the peritoneal cavity, while the uterus became inverted, and protruded through the vagina. The predisposing causes of the accident are the causes of acute labour and excessive or irregular action of the uterus. It is of very great importance to understand clearly the real nature of inversion, as it is one of those accidents which is most confidently referred to malpractice. The less it is considered a mechanical displacement, the less disposition will there be to attribute it to the accoucheur; owing to the prevalence of the mechanical idea, obstetricians have sometimes been blamed most unjustly in cases of inversion.

The treatment consists of the mechanical re-position of the uterus. Immediate steps should be taken to reduce the inversion, because of the rapidly increasing contraction of the os uteri, which, by impeding the circulation, causes an increase in the size of the tumour. The size of the uterus should be reduced as far as possible by pressure, and by detaching the placenta in cases where it still adheres. By moderate but sustained force the uterus is then to be passed up through the vagina and os uteri. After the organ has been partly passed through the os uteri, the muscular action of the uterus itself assists in restoring it to the proper position. It is reinstated with a sudden jerk, causing a considerable report at the moment of its restoration. In cases where intus-susception exists, the hand must be passed through the os uteri, so as to overcome the annular contraction, and to restore the intus-suscepted portion to its proper position. Cases of intus-susception and inversion require careful watching until the uterus has permanently contracted.

Ibid, *p.* 575.

166.—*On the Puerperal Fever of Vienna.*—By Dr. C. H. F. Routh. —[In a paper by Dr. Routh, communicated by Dr. Murphy to the Medical and Chirurgical Society, the author observes:]

There are three lying-in departments in the General Hospital of Vienna. To one of these strangers are not admitted. Of the two others, to which only the author's remarks refer, one is destined for the instruction of medical men and midwives, the other for the instruction of midwives only. The average number of deliveries in each department is from 250 to 300 per month. The mortality in the division for midwives and medical men has generally been thirty per month, and has occasionally been seventy. In the division for midwives only, the number of deaths has generally been from seven to nine per month. The clinical instruction is conducted on precisely the same general plan in the two departments; but the medical men receive also practical instruction in a private course, in which the operations are performed on the dead body of some female, while the midwives receive this instruction by means of the leather phantom. The frightful mortality in the division to which medical men are admitted, became the subject of a govern-

ment inquiry, and the number of students in attendance was reduced from forty to about thirty. The mortality, however, remained the same as before. On inquiry, it was found that in other countries, where there were two divisions in the lying-in hospitals, one for midwives, and another for medical men, the mortality was far greater in the latter. The author shows that this difference could not depend on the manipulations of male attendants being more rough than those of midwives, nor to the influence of contagion or infection. He adopts the explanation proposed by Dr. Semelweiss, the assistant-physician of that division of the Vienna Lying-in Hospital in which the great mortality has occurred—namely, that the real cause of the mortality from puerperal fever there, was the "uncleanliness of medical men and students in attendance;" their hands being impregnated with cadaveric matter through dissecting, making autopsies, and performing obstetric operations on dead bodies. Dr. Semelweiss recommended all students attending his division of the lying-in hospital not to handle dead matter, or, if they did so, forbad them to make any examinations of the patients till the following day. And he directed every student to wash his hands in a solution of chlorine prior to and after every examination made on the living subject. The result was, that the number of deaths was reduced from thirty per month, to seven per month, the usual average mortality of the division for midwives only. The author makes some remarks on the modes in which the cadaveric matter may be introduced from the hand of the medical attendant into the system of the woman. He then describes the characters of the puerperal disease so fatal in the Vienna hospital, with the view of demonstrating its resemblance to the effects of a poisoned dissection wound; and he concludes by recapitulating the inferences which he believes to be justified by the facts stated in his paper.

[After the reading of this paper at the Royal Medical and Chirurgical Society, Dr. Murphy mentioned the case of a German student, who was constantly going to post-mortem examinations. Puerperal fever seemed to attend him wherever he went; but on his giving up his pursuit after dead bodies the fever subsided.]

Dr. Copland said, that the facts stated in the paper were so convincing that we could scarcely doubt their accuracy. The mode of infection mentioned by the author was, however, only one of the modes in which puerperal fever was propagated. It was known that the disease might be communicated also by the hands of the accoucheur who had attended a case of the disease. The paper had proved that it might be communicated by the hands used in post-mortem examinations. But the disease frequently broke out without any chance of its origin being traced to this cause. In most cases, in the lying-in hospitals, the matrons, or midwives, who did not examine bodies, delivered the patients. He thought that something was due to the frequency with which examinations during labour were made, and also to the atmosphere of lying-in

establishments. This was impure, from the effluvia resulting from the lochial and other discharges of the women. In this way the disease was propagated by napkins, &c.

Mr. Moore could testify to the accuracy of the author's description of the cleanliness of the hospitals in Vienna. The amount of post-mortem examination going on in that establishment was remarkable. He had seen as many as fifteen bodies lying for examination in a morning. The students and professors had their hands immersed in these for hours together. The position of Vienna was such as not to surprise any one that puerperal and typhus fevers were prevalent there. It was in a flat, marshy district, and was frequently visited by storms. The mortality of puerperal fever in this city did not exceed that from typhus.

Mr. Marshall said, that bathing the hands in chlorine, after post-mortem examinations, did not always act as a preventive to puerperal fever. He had been examining a body. He was called from thence to a labour, but took the precaution of changing all his clothes, and washing his hands in solution of chloride of lime; his patient, however, was seized with puerperal fever, and the next following three suffered from the same malady.

Lancet, Dec. 9, 1848, *p.* 642.

167.—*On the Introduction of Air into the Veins after Delivery.*—By Dr. Simpson, Edinburgh.—A series of cases that Dr. S. saw in consultation, and that occurred in rapid succession, six or eight years ago, seemed to him to suggest the idea whether air might not become introduced into the venous circulation of the mother after delivery, and whether one common result of this accident was not the occurrence of a red or scarlatinoid eruption upon the cutaneous surface of the patient.

The first case occurred in the Lying-in-Hospital. The patient had been delivered of twins. Dr. Zeigler was called to visit her, in consequence of some difficulty connected with the birth of the second child. Considerable post-partum hemorrhage, with alternate contractions and relaxations of the uterus supervened, and she seemed to rally very imperfectly from the effects of the flooding. In consequence of this, Dr. S. saw her an hour or two subsequently. The pulse at that time was very rapid and weak, almost imperceptible. The countenance extremely anxious, and here and there was an evanescent red scarlatinoid rash over the body. The patient died in a few hours. The body was opened in a short time after death, because it was considered desirable not to incur the fallacy of air being present from decomposition; and Drs. Simpson and Zeigler were anxious to ascertain if the anomalous symptoms that were present during life, could possibly arise from the entrance of air into the veins. To make the examination the more certain, the abdomen was opened under water. The lower vena cava, but specially the uterine and hypogastric veins were distended with frothy blood, and the air bubbled up through the water when any of these tubes

were opened. The larger veins in the extremities were in the same state.

Some search was subsequently made into the literature of cases in which air had been introduced into the veins during surgical operations upon the neck, &c., in order to ascertain if the evanescent patches of red or scarlatinoid rash remarked in the preceding instance, had been observed in any of these surgical cases. Dr. Warren, of Boston, in an article on the subject in the American Cyclopædia of Practical Medicine, relates two cases which occurred in his own surgical practice. The first patient recovered after being insensible for a considerable time. While still comatose, "the leaden colour in the cheeks," says Dr. Warren, "assumed a *reddish* tinge, and the alarming character of the symptoms was evidently diminished." The second case was fatal. During the period elapsing between the entrance of the air, and the death of the patient, Dr. Warren, in describing the symptoms remarks, "The livid colour of the cheeks gave place to a suffusion of *vermillion red*, and no glow in the cheek of a youthful beauty ever gave one so much pleasure as that flush. But the flush soon passed off."

If the red or scarlatinoid rash which appeared in the preceding obstetric case upon the surface of the skin, were owing to the entrance of air into the uterine veins, might the symptom be accounted for on the idea, that the introduced air directly mixed with, and oxygenated the blood in the capillary vessels?

After the preceding case occurred, Dr. Simpson was called to three or four other instances in which a similar train of symptoms was present;—namely, great depression after delivery, a rapid and almost imperceptible pulse, and patches of an erratic scarlatinoid rash upon the surface. All the patients died within two or three days after delivery. In one case which he saw with Mr. Kerr, and where the death was much more rapid, no red rash appeared, although the other symptoms were analogous. The first was the only case in which an autopsy was procured. Two or three of the cases had been considered as malignant scarlatina, a disease which was acknowledged by all our highest obstetric authorities to be exceedingly fatal to the puerperal female, but which may possibly in many other cases have been mistaken for, and confounded with, the affection to which this notice refers.

Supposing the introduction of air into the venous system after delivery to be the cause of the symptoms or affection in question, it is not perhaps difficult to understand the mere mechanism of its introduction. Surgical pathologists generally hold, that the air cannot be *drawn* into open veins, unless these veins are not very distant from the heart. But air may be *forced* into open veins when the open orifices are at a distance from the heart, and when circumstances exist capable of causing it to enter into such orifices.

A mechanism calculated to produce the entrance of air in this last way, exists in the uterus after delivery. The interior surface of the organ, especially opposite the late seat of the placenta, has a number of ruptured venous orifices opening upon it. Supposing

air once introduced into the uterine cavity, which in some cases may occur in consequence of the alternate relaxations and contractions of the walls of the organ following delivery (as in after-pains, post-partum hemorrhage, &c.); and supposing further, that under the returning contractions of the organ, the expulsion of this air from the cavity was prevented by the presence of a clot at the os uteri, or other such obstructing cause, it will then, under the compression to which it is subjected, be liable to be driven into the open venous orifices existing in the lining membrane of the uterus. A bottle of caoutchouc of the shape of the uterus, and with tubes like the venous tubes of the uterus opening upon its interior, would act in this way on the prinriple of the force-pump, in sending any air sucked or drawn up into its cavity along these open tubes, if, after being full, its parietes were compressed, and its aerial contents prevented from escaping through the mouth of the bottle, as we fancied to be the case in the uterus under the conditions mentioned.

Monthly Journal, April, 1849, *p.* 707.

168.—ON PUERPERAL CONVULSIONS.

By Professor MURPHY, University College

[Remarking on the difference in the symptoms of puerperal convulsions in different cases, Prof. Murphy says:]

Sometimes these attacks assume all the characters of epilepsy, sometimes of hysteria. Cases present themselves where symptoms of apoplexy predominate, and give that character to the fit; and again we find that these paroxysms are the final symptoms of extreme hemorrhage. A similar form of convulsions takes place when the action of the heart is at its maximum, and when it has almost ceased from loss of blood. Some writers describe puerperal convulsions as if every form were alike. Others enumerate its varieties, and speak of epileptic, apoplectic, anæmic, and hysterical convulsions.

Sthenic convulsions occur most frequently in patients who are of a plethoric habit, in whom the circulation is unusually active, and where we have every evidence that blood is in excess. In such instances the irritation of any organ that is largely supplied by the ganglionic nerves will cause convulsions when the spinal system is predisposed to irritation, in consequence of the newly excited function of the uterus. Thus a hearty meal, a sudden fright, a loaded state of the intestines, will cause an attack independently of labour. But when labour begins, when the action of the uterus is powerful, if it meet with much resistance to its efforts, and its action is impeded by uterine congestion, convulsions are frequently the result.

Puerperal convulsions may seize the patient either before, in the progress of labour, or after it has concluded. Those that occur before or in the commencement of labour generally depend upon the

irritation of some other organ than the uterus, and hence are much more fatal than those which are the result of labour; you have in fact two sources of irritation acting upon the spinal system in place of one. Dr. R. Lee relates the case of a lady who "returned home after midnight from a large dinner party, at which she had partaken of a variety of dishes and wines, and had been seated before a large fire." Labour came on soon after, and with it violent convulsions. Another patient "being in the eighth month of her pregnancy dined on curry and rice, and ate bacon and eggs at tea;" the following day she had convulsions and premature labour. Both these were fatal cases, and in both the stomach was a primary, the uterus a secondary source of nervous irritation. Violent mental emotions act precisely in the same manner. More commonly, however, these are not the cases that induce the paroxysm; on the contrary, labour proceeds to a certain point without interruption; the action of the uterus is perhaps powerful, the head large, and the resistance to its advance great. A severe struggle arises, congestion takes place in the uterus, the pains are interrupted, a morbid irritability is excited in the uterus, which is communicated to the spinal centre, and thence reflected over all the muscles in violent convulsions. The uterus alone is the source of irritation here, and therefore the cause of the attack is more easily removed.

[Dr. Murphy sums up his remarks upon the nature and causes of puerperal convulsions, in the following remarks:]

1st. Puerperal convulsions should not be confounded with epilepsy, nor with apoplexy. They agree with the epileptic attack in their physiological, but not in their pathological characters. Apoplexy is an effect of the paroxysms, which may or may not follow from them.

2nd. The predisposing causes of puerpural convulsions, are either an excess of blood (hyperæmia), a deficiency of blood (anæmia), or impure blood.

3rd. The proximate causes of convulsions are chiefly eccentric causes, being the morbid irritation of the afferent nerves supplying the different vital organs.

4th. *Morbid irritation of the uterus* is the most common proximate cause of puerperal convulsions, the result either of hyperæmia or anæmia. Hence the division into sthenic or hyperæmic convulsions, and asthenic or anæmic convulsions. Under the latter head we include not merely loss of blood, but poverty of blood, and impure blood, because the effect seems to be similar, only differing in degree.

5th. *Morbid irritation of other organs* also causes puerperal convulsions, because, during pregnancy, and at the time of labour, the nervous system is more excitable that at any other time: and hence any organ may easily be rendered morbidly irritable. Puerperal convulsions so caused are much more fatal than the former, because the nervous centre is exposed to a two-fold source of irritation—the organ primarily affected, and the uterus that is secondarily excited.

6th. In the whole of these phenomena we must perceive a beautiful illustration of the reflex nervous function; the peripheral nerves that supply the affected organ rapidly communicating their irritation to the spinal system, which, as an excito-motor centre, radiates the irritation over the whole of the voluntary muscles, and the muscles of respiration, in violent convulsive paroxysms. Even the involuntary muscles, as the uterus and heart, do not escape, but give every evidence of greatly increased muscular contractions.

Medical Gazette, Jan. 26, 1849, *p.* 133.

[The treatment of convulsions, Prof. Murphy observes, must depend upon the cause. He says:]

Hyperæmic convulsions are most frequently met with. In such cases you generally have well-marked premonitory symptoms—the bounding pulse, throbbing headache, singing in the ears, &c., &c., give you sufficient notice of the excitement in the circulation, and the impending danger: if, with these symptoms, the pains are short, and the action of the uterus laboured, you may be certain of convulsions unless prompt relief be afforded. A large and decided depletion is clearly indicated: thirty or forty ounces of blood may be taken with advantage; every extraneous source of irritation should be removed: if improper food or drink be taken, or if the bowels are constipated, emetics and active cathartics are necessary. The salutary effect of depletion may be maintained by placing the patient under the influence of tartarized antimony; the force of the circulation is reduced by the nausea excited, and the labour proceeds more favourably to its conclusion. It is of great importance to notice quickly, and to avert with promptitude, these premonitory symptoms, because I am persuaded that decision at this stage of the threatened attack may prevent it altogether, while hesitation and feebleness will only more certainly determine the paroxysm.

If, however, convulsions seize the patient unexpectedly, the first object of your attention is to save her from being injured during the fit: a cork should be placed between the teeth in order to prevent the tongue being cut. In the violent succession of the fit, the patient may be jerked from the bed; she often throws herself about the bed with great violence; you must prevent her being hurt, by removing every thing out of her way, but not, recollect, by holding her down with all your strength: this is a very common mistake. I have seen the bed surrounded by friends, some holding the body, others the legs and arms, as if they could thus stop the convulsion. The only effect of their exertions is to exhaust the patient: she complains of great fatigue and soreness when she recovers herself: nothing more should be done than to prevent her falling out of the bed; the less the convulsive paroxysm is restrained the better; you may, however, diminish its severity, or possibly arrest it, by exciting a nervous shock—cold affusion is sometimes found very serviceable. Denman used to recommend that a large basin of cold water be placed within reach, and when the fit was commencing

to dash it against the face with a whisk: I have adopted this practice frequently, and with complete success: the paroxysm was sometimes stopped altegether, but if it took place it was much less violent than before.

The general treatment of the case can only be undertaken when the fit is subsiding, just as the stage of coma is approaching. Depletion, to the extent we have stated, should be at once carried into effect; it would be advisable also to administer an active cathartic enema: I think a terebinthinate enema is the most efficient for this purpose. The head, and especially the back of the neck, should be covered with cloths wrung out of iced water; but, at the same time, it is very essential that the temperature of the lower extremities be maintained, the circulation being often just as feeble there as it is strong about the head and neck. If the return of the paroxysm be thus prevented, you may give the patient a full dose (gr. x.) of calomel, and in two or three hours the usual saline senna mixture, adding to it from half a grain to a grain of tartarized antimony. It will be well, also, to continue the use of tartar emetic, in half-grain doses, for some time afterwards: its influence in controlling the action of the heart is very great, and if judiciously given will generally render a second depletion unnecessary: when it is administered for this purpose, it should be combined with tincture of opium, so as to prevent any undue irritation of the intestines.

The most important question, however, that we have to consider is, the delivery of the patient: the uterus is morbidly irritable, and the child is an irritant so long as it remains in its cavity. Should it not be at once removed? The apparent conclusiveness of this argument has, in most cases, led to immediate delivery, without much hesitation as to the operation that may be necessary for the purpose: the child is extracted either by the forceps, the crotchet, or by turning, according to circumstances. I very much doubt the propriety of this practice as a general rule. I do not mean to object to the introduction of the forceps when the head is within its reach, and there is sufficient room for the application of the instrument; neither, if the head be impacted, and the child's death ascertained, need we feel any difficulty about perforation: but to destroy a living child, or to pass the hand into the cavity of the uterus for the purpose of turning it, on the principle that it must be at once removed, appears to me very objectionable, because I think it unnecessary. In many of these cases, the child is delivered by the natural efforts, generally dead, but sometimes living. Unless, therefore, you were satisfied of its death, it would be unjustifiable to destroy it by the perforator. If proper constitutional treatment be adopted, the hazard to the patient is not increased by any delay that caution may require; while, on the other hand, by precipitate interference positive danger may be incurred. This seems to me to be especially the case when the child is turned, because the irritation from the presence of the child in the uterus is as nothing when compared with that caused by the hand forced into the cavity

of the womb for this purpose: a mere vaginal examination often induces a paroxysm of convulsions; you can therefore appreciate the danger of the more violent operation of turning the child under such circumstances. You will find, in the history of such cases, that the fits continued afterwards, and a fatal result was too often the consequence. Statistical results afford a very strong confirmation of this objection.

So far, therefore, as the delivery of a patient in hyperæmic convulsions is concerned, I should recommend you to trust to the action of the uterus (which is always increased) to effect the delivery, at the same time controlling, by general treatment, the severity of the paroxysms. If the head descend within reach of the forceps, you may apply them if the paroxysms are continuing, but if they have subsided it is better not to do so, lest you might renew them. If the head be impacted, or if it be difficult to apply the forceps, and the child's death be ascertained (and this usually soon takes place), you may remove it by the crotchet, but I would caution you strongly against turning the child. In certain cases, as preternatural presentations, turning is unavoidable, but this rarely occurs. The more usual practice is to turn the child in vertex presentations, under the erroneous impression that if the child be not at once removed the danger will be greatly increased: believe me, there is much more danger in the operation itself.

In this summary of treatment we have confined your attention to one form of the attack, where there was an excess of blood in the uterus, the labour perhaps severe, the uterus rendered morbidly irritable, and convulsions the result. We shall now examine another variety, which may well be contrasted with that we have been considering.

Asthenic or anæmic convulsions will occasionally fall under your notice. Anæmic convulsions from loss of blood are the final and the fatal symptoms of extreme hemorrhage: with this we have nothing to do: but asthenic convulsions from a deficiency not only in the quantity but in the quality of the blood sometimes take place, and when they present themselves they are always extremely dangerous. A very slight loss of blood occurring in a constitution previously debilitated by poverty and privations will induce the paroxysms, and sometimes they occur without any loss of blood.

[After adducing cases in support of this statement, Dr. Murphy says:]

I think it may be stated as a rule, that convulsions occurring during pregnancy, or before parturition, are more dangerous than those which accompany or follow labour. The former depend upon extraneous causes; the latter upon the uterus: the one may arise with women who have had many children; the other occurs almost invariably with the first child. In the latter, hyperæmia is the most prominent constitutional feature; in the former there is every evidence that the constitution is suffering from debilitating causes.

We have wished to contrast these two forms of convulsions,

because they are as equally opposed in their treatment as in their characters. Depletion, tartar emetic, purgatives, and a general antiphlogistic treatment, are required in the convulsions of primiparæ. Stimulants, opium, good diet, warm purgatives, and counter-irritation, are more suitable for the convulsions of a broken-down constitution. *Opium*, as a remedy in convulsions, has met with good and ill success: it has been highly praised, and as strongly condemned. This apparent opposition in the experience of its effects may, I think, be reconciled. Opium may be given very improperly when it is attempted to control by its influence the paroxysms of hyperæmic convulsions. So long as the exciting cause of the fit is in active operation, a kind of struggle goes on between the excitant and the remedy, that generally ends in a great increase of severity in the convulsions; but when opium is given in the convulsions of debility, it acts as a stimulant to an exhausted nervous system, and arrests the fits. It is right to state that in such constitutions opium has sometimes been taken as an habitual stimulant.

Stimulants, such as camphor, ammonia, wine, brandy, &c., are useful on the same principle as opium: they restore the activity of the circulation, and with it a certain amount of nervous energy. When inanition is the most obvious cause of the debility, and of the convulsions consequent upon it, a nutritious diet cautiously administered is of more efficacy than medicines. The only remedies of the antiphlogistic class required in such cases are *purgatives*. The bowels are usually constipated, and it is possible this irritation may have been the immediate cause of the attack. It is always advisable, therefore, to procure a free evacuation from them before opium is administered. When these are necessary, the warm stimulant cathartics are the best, such as aloes, assafœtida, turpentine, &c.

Immediate delivery of the patient is not, I think, required, and may be more dangerous here than in sthenic convulsions. In both cases the operation renews the paroxysms, which continue long after delivery; but in the asthenic form this alone may determine its fatal termination; while in sthenic convulsions there is still hope that the constitution will maintain itself until they gradually subside. Besides this, in the former variety there is less difficulty than in the latter in the expulsion of the child; consequently there is less reason for a precipitate interference.

[Depletion is contra-indicated: nevertheless it is necessary to relieve the venous congestion which results from the convulsions. Dr. Murphy remarks that if this cannot be effected by dashing cold water on the face, we may cup at the back of the neck, and afterwards apply a blister or sinapism; taking care at the same time to support the patient's strength, and to keep the surface warm. Dr. Murphy remarks:]

Morbid irritation of any other of the organic viscera may cause puerperal convulsions, which are generally much more fatal than hyperæmic convulsions, because in such instances there are two centres

of irritation in place of one: the organ that is directly affected, and the uterus that is indirectly excited,—the primary and secondary centres of excitation. Thus we find the paroxysms may seize the patient during pregnancy, and induce premature labour; or they may occur just before labour, and hurry it forward. In both cases the action of the uterus is the consequence, not the cause of the attack. In this view, gestation and labour act only as predisposing, not exciting, causes. A patient who at any other time might escape the consequence of excess in eating and drinking, may be seized with convulsions when labour is approaching. A supper of oysters, that at a more favourable moment would only cause a sounder sleep, if labour be near, may induce convulsions that rapidly hasten to a fatal termination. A sudden fright, which would only cause syncope if pregnancy did not exist, excites paroxysms that cannot be controlled. In this manner, irritation of the brain, stomach, or intestines, when it excites a corresponding irritation of the uterus, gives rise to the most dangerous form of convulsions that we meet with.

The *treatment* of such cases must be directed to relieve the organ that is the primary centre of irritation. If it be the stomach, emetics which are prompt in their action, as mustard, sulphate of zinc, &c., are the most efficient. When the stomach is relieved, anodynes may be given with advantage. If the intestines are loaded, active purgatives, both by the mouth and rectum, are necessary. If the brain be excited in a plethoric patient, cupping the back of the neck, counter-irritation, cold to the head, calomel in full doses, purgatives, and tartarized antimony, may all be required; but if she be of a feeble constitution, camphor, ammonia, and opium, are more serviceable. The treatment of these latter cases may be conducted on the same principle as similar forms of puerperal insanity.

[Dr. Murphy then proceeds to speak of hysterical convulsions. They resemble the ordinary hysterical fits, and except when they are the result of great mental shock, they are not dangerous. The treatment will consist in dashing cold water on the face to arrest the paroxysms, and in giving a turpentine or assafœtida enema, which will generally bring away a large quantity of scybalous and offensive fœces. When the bowels are fully relieved, we may give diffusible stimulants, as ether, ammonia, or camphor, combined with opium. Depletion and antiphlogistics are not admissible. In patients liable to such attacks, the state of the bowels must be carefully attended to for some time before the approach of labour.]

Medical Gazette, Feb. 9, 1849, *p.* 221.

169.—*On Dr. Simpson's Uterine Supporter.*—Dr. Ashwell says: —Two cases have recently come under my care, and I have heard of more, where the results arising from the use of this instrument have been very serious. Looking at it pathologically, I can scarcely imagine anything better devised for inducing disease. According

to this practice, a piece of ivory, two inches and a half long, is to be introduced into the uterine cavity, and its bearing must of necessity be on some part of the lining membrane, a surface ill adapted to support the pressure for two or three months together of such an instrument. The consequences may be supposed. One of the patients from whom, after a long and distressing journey, I removed this ivory one-pronged fork, told me she had never been free from pain since its introduction. In addition, it had produced frequent and intense sexual excitement, preventing sleep for many nights together, and had kept up constant leucorrhœal discharge. In the other example, during the two months this instrument had been worn, the sufferer, in addition to the previous complaints, had never been free from sanguineous discharge, lumbar pain, and frequent desire to micturate. In both, the speculum showed that abrasion of the os and the ostium vaginæ had resulted from the use of the so-called uterine supporter.

[The reviewer of Dr. Ashwell's work also expresses an unfavourable opinion respecting the plan of introducing a stem into the uterus. Speaking of this, and other fashionable practices, he says:]

Is there anything so serious in a retroversion or retroflexion of the unimpregnated uterus, as to justify a practitioner in running the risk of exciting peritonitis, cellular inflammation, and abscess, —injuring the structure of the womb,—and enkindling desires, or implanting habits, which destroy purity of feeling and physical health? Our own conviction is, that this supporter will be found to create more disease than it cures; and with the belief that the uterine sound will be extensively because easily employed, the same observation will, we think, be verified in it. The habitual use of powerful escharotics in simple inflammatory hypertrophy of the cervix, cicatrizing and contracting the os and cervix, and frequently too the vagina, and risking deeper-seated pelvic inflammation, is open to a similar inquiry, and the same animadversion. May we not add, too, the practice, now becoming common, of opening and dilating the os uteri, whenever it happens to feel rather small, and smearing the uterine cavity with the solid nitrate of silver, to excite the menstrual flux; and, at last, to cover the spirit of obstetric adventure with the mantle of Quixotism, the announcement that the Fallopian tubes are to be explored to remove sterility? Surely, in all these, there is much that is visionary; more that is meddling; and in all there is the tendency to create more disease than they cure. It appears to us that much of what has been proposed and adopted in the treatment of uterine disease within the last six years, has been empirical, and rashly experimental; and that the evil results have been in a great measure concealed.

British and Foreign Medico-Chirurgical Review, Jan., 1849, *p.* 161.

170. - *On the Use of Pessaries in Prolapsus Uteri.*—By Dr. Meigs, Professor of Midwifery at Philadelphia.—As to my own preferences in the matter of pessaries, I have only to say, that whatever may keep the womb at its due height without irritating it, or incommoding the other organs and textures implicated in the descent, is a good pessary; but I deem the globe the most perfect and most suitable for the ordinary simple cases. An instrument of two inches, pressed upwards to the uterine extremity of the vagina, lifts the womb high enough; higher, in fact, than the position occupied by it in eight out of ten of those women who have had a child, and that is high enough. It is kept up by the double and consentaneous actions of the sphincter vaginæ muscle, and the levator ani. It has no angles, no sides; it cannot be displaced, save by being ejected. Its pressure is uniform over its whole superficies, save where its lower segment looks down the tube of the vagina. This cannot be so truly said of any other instrument, if we except, perhaps, the gum-elastic bottle, used and recommended by Dr. Hervez de Chegoin, in his paper in the "Mém. de l'Acad. de Méd." The globe has a perfect polish, and an unoxydizable surface. It may be worn a year or more without displacement, if required; and it has no aperture to admit of the collection of putrescible materials within it. It does not prevent the escape of the mucus of the uterus and vagina, nor of the menstrua; and, in short, is the least uncomfortable and most perfect of instruments. It is a true suspensory, as needful for the descended womb as the suspensor scroti for a hernia humoralis or orchitis. It is as neat and perfect in its kind, as Petit's tourniquet in its kind, and as indispensable for the cure. Dr. Physick used to tell us in his Lectures, that a man might as well attempt to improve the Bible as Petit's tourniquet, and I, after him, repeat, that you might as well attempt to improve Petit's tourniquet, as Physick's globe pessary. But you know I always have warned you to be *nullius addictus in verba jurare magistri*, and so I say, judge of it for yourselves.

[Dr. Ashwell also, in the last edition of his work on the diseases of females, exhibits a strong predilection for the use of the pessary.]

Ibid, p. 156.

171.—*Thlaspi Bursa Pastoris in Menorrhagia.*—In a case of menorrhagia which had resisted ergot, astringent injections, &c., M. Vanove employed a decoction of this common herb with complete success. The woman was exhausted to the utmost degree when this medicine was commenced. The formula used was a decoction of a handful of the fresh plant in three tea-cups of water, boiled to two; the dose was a cupful twice a-day. It appears that the herb is in common use among the German peasantry.—*Rev. Med. Chir.*, Dec. 1848.

Provincial Medical and Surgical Journal, March 21, 1849, *p.* 163.

172.—*Treatment of Uterine Catarrh.*—By Professor E. Strohl, Strasbourg.—M. Strohl recommends against this malady uterine injections, which were some years since brought into notice by Dr. Robert and Vidal de Cassis, but almost entirely abandoned since that period, from the fear of occasioning peritonitis, by the passage of the injection into the abdomen through the fallopian tubes. In order to obviate this danger, M. Strohl recommends the injection to be used very slowly, and through a long caoutchouc catheter introduced about three lines into the os uteri. This instrument should not fill up completely the orifice of the womb, in order that the injected fluid may be permitted to return immediately; thus exercising no pressure against the apertures of the fallopian ducts. The liquid recommended by the author is the liq. plumbi acetatis, or a solution of ʒ i. of iodide of iron in ℥ xij. of distilled water. The injection is not painful, and rapidly modifies the nature of the uterine discharge. In twenty-nine cases, M. Strohl states that the average duration of the treatment was fourteen days. In three instances only, some unimportant hysterical symptoms were observed.—*Revue Méd. Chir.*

Medical Times, Dec. 16, 1848, *p.* 162.

173.—*A New Method of Applying Vienna Paste to the Os Uteri.*—By Dr. Mitchell.—[At a meeting of the Surgical Society of Ireland,]

Dr. Mitchell drew the attention of the meeting to a new method of applying the Vienna paste to the os uteri. Subsequent to the healing of ulcers of the neck, or orifice of the womb, every practitioner may have remarked, that certain obstinate symptoms, consisting of debility, pain and weakness in the loins, a sensation of bearing down, &c., are apt to continue. These have been ascribed to very different causes. Some have attributed them to relaxation of the uterine ligaments, others to a flaccid condition of the vagina, and a third party to congestion of the mucous membrane covering the os uteri. With the latter class of pathologists Dr. Mitchell agreed, and exhibited drawings of the congested parts in support of this opinion. The treatment founded on this doctrine is that of leeching the neck of the uterus; but, in addition, some more powerful means of changing its morbid action has been found necessary. For this purpose, Jobert recommends the actual cautery; but although this procedure does not cause pain, it is so frightful to the patient that it ought, if possible, to be avoided. Gendrin prefers the Vienna paste, a mixture of caustic potash, and lime, reduced to powder, and kept in close bottles until about to be employed: and Bennet, of London, joins in this recommendation. Gendrin's plan of applying the Vienna paste is, to mix it with a little water, and then smear on a bit of adhesive plaster; and the os uteri being exposed by a speculum, to introduce the adhesive plaster, and paste it on to the neck of the uterus by filling up the speculum with cotton. The speculum is then withdrawn, when, of course, the vagina is left filled with raw cotton. Dr.

Mitchell's plan is to employ a glass rod, spread at the end into a circular disc. Upon this he spreads the paste, and, introducing it through the speculum, gently presses it against the part of the os he has selected. If he wishes to withdraw the speculum, he passes a glass tube, rounded at the end, so as to surround the rod, and then withdraws the speculum. Dr. M. claimed no credit for the mode of practice, but merely for what he conceived to be an improvement in its application.

Medical Times, Dec. 30, 1848, *p.* 198.

174.—*Case of Encysted Tumour of the Labium.*—By Dr. R. L. Macdonnell.—[Dr. Macdonnell was consulted by a lady on account of a tumour in the labium, of three years' duration, which presented some of the characters of hernia. It differed, however, from that disease in so many respects as to justify, in Dr. Macdonnell's opinion, exploration. The following is the account he gives of the treatment.]

March 20th. An exploratory puncture was made, and water of a dark olive colour, devoid of odour, escaped. The opening was enlarged, and a tumbler-full of thick fluid flowed out, which was of a creamy consistence, and on microscopic examination was found to be composed of decomposed pus globules, with a large quantity of what appeared to be epithelial scales intermixed. The sac of the tumour was freely cauterized with nitrate of silver conveyed on a probe, and the orifice kept open by means of a plug of lint.

27th. The sac of the tumour has been filled up with solid secretion, and has undergone great diminution in size; no general disturbance.

April 1st. Scarcely any trace of the tumour to be detected, except some thickening of the labium, giving to it a greater fulness and prominence than the other. Ordered to apply mercurial ointment.

10th. Perfectly recovered; no traces of the disease left.

Four plans of treatment have been recommended for the cure of these tumours:—1st. Complete dissection out of the whole cyst—a plan which must be extremely difficult in most cases, in all extremely painful, and in such a case as mine, quite impracticable. 2nd. Laying open the cyst, and filling it with charpie. 3rd. Seton. 4th. Removal of the fluid, and then compression, so as to bring the walls of the cyst into close apposition. The plan of treatment which I have employed for some years past has been to cauterize with nitrate of silver the lining membrane of the cyst, so as to cause adhesive inflammation, and this process I have found to be so readily excited by the caustic, that I have never been obliged to repeat it a second time. In some instances I have touched the granulations occasionally during the progress of cure, for the purpose of hastening the filling up of the sac; and these were instances where I believed that the nitrate of silver had acted, not by inducing adhesive inflammation, but by effecting a change in the functions of the membrane, in consequence of which it threw out granulations

instead of secreting, as formerly, a peculiar fluid. In every case in which I have used the nitrate of silver in this manner, a speedy cure has followed, unattended by any bad consequences, and the patient has not been aware, in the majority of instances, that anything beyond the mere puncture of the cyst has been attempted. When we reflect for a moment upon the difficulty of dissecting out a cyst even of moderate size, and upon the excessive pain the patient must endure, both in this operation and the second and third I have mentioned, and when we recollect the extreme difficulty, if not impossibility, of applying accurate pressure, it will be allowed that the method I propose is at least unattended with any of those inconveniences; and if it should prove in the hands of others as successful as it has done in mine, and I have little doubt but it will, it may be considered a plan of treatment preferable to any recommended for the cure of this disease.

The method of preparing the caustic may not be known to some of my readers, and I shall therefore make no apology for describing it:—A large-sized probe should be dipped in caustic, which has been rendered fluid by melting in a watch-glass over a spirit-lamp or wax candle, until there is a complete coating of the caustic on the probe. When this cools, we have the nitrate of silver in a form well suited for being conveyed through a small opening and into a deep cavity, and by bending the probe we suit it to the shape of the cyst, and thus it can be brought into contact with all parts. In large cysts, such as that under consideration, I have had two or three probes thus prepared, as the quantity of caustic coating one is not enough for the extent of surface to which it must be applied.

This method of destroying cysts I have been in the habit of employing in other diseases, as in encysted tumours of the eyelids, and in sebaceous encysted tumours; and lately I succeeded in curing a lady of a tumour of the shape and about twice the size of an almond, which had been growing for some months on the left jaw, and which had resisted every plan of treatment proposed by her former attendant, who had at last recommended its extirpation. A small puncture was made into it, and its contents, which were composed of a reddish jelly-like substance, were squeezed out. A probe, coated with caustic, was introduced and freely applied to its interior. For the next few days a small quantity of bloody serum oozed out, but the tumour gradually diminished in size, and now no trace of it remains, nor is there the least scar visible, which I need not say is a matter of some importance.

Dublin Medical Press, May 2, 1849, *p.* 278.

175.—*A New Instrument for Vaginal Injections.*—[This instrument is the invention of Dr. W. Jones, who calls it the "Syphon Douche."]

It consists of nine feet of gutta percha tubing, about one-fifth of an inch in diameter, divided into two parts, the one seven and the other two feet in length, capable of being secured by a union joint,

and, if necessary, commanded by a stop-cock. The upper end of the tube is immersed in a vessel containing water, either medicated or not, at a moderate temperature, and this bends over, so that by suction from the mouth it may be made to discharge the contents of the vessel on the principle of the syphon. The lower portion of the tube ends in a perforated boxwood bulb, for introduction into the vagina. The female, by connecting the two portions of tube at their union-joint, thus applies a current of water, under columnar pressure, to the vaginal passage, which may be, in this way, effectually, and for any length of time, washed out.

Medical Gazette, Feb. 16, 1849, *p.* 295.

176.—*Treatment of Sore Nipples by Collodion.*—The following observations are quoted from Professor SIMPSON's paper on gun-cotton solution:—It has been proposed to use the ethereal solution of gun-cotton for other purposes than the dressing and union of wounds—for example, as a substitute for the starch bandage in fractures; as an application and dressing to ulcers, &c. In abrasions, and slight injuries of the skin about the fingers, it forms an excellent and adhesive dressing. There is one extremely painful and unmanageable form of ulcer in which I applied it eight or ten days ago, at the Maternity Hospital, with perfect success. I allude to fissures at the base of the nipple. Most practitioners know well the agony that some mothers undergo in consequence of this apparently slight disease; the ulcer or fissure being renewed and torn open with each application of the child. In two such cases I united the edges of the fissures, and covered them over with the solution of gun-cotton, making the layer pretty strong. It acted successfully by maintaining the edges so firmly together that they were not again re-opened by the infant: the gun-cotton dressing was not, like other dressings, affected by the moisture of the child's mouth; and as a dressing, and at the same time, by securing rest to the part, it allowed complete adhesion and cicatrization speedily to take place. I have applied it also repeatedly to ulcers of the cervix uteri and over various cutaneous eruptions. Its application relieves at once the smarting of slight burns.

British Record, Dec. 15, 1848, *p.* 144.

177.—*On Cerebral Disturbance resulting from Uterine Disorders.*—By Dr. G. CORFE, Middlesex Hospital. — [Under this title, Dr. Corfe describes a train of symptoms which frequently occur in females at the climacteric period; attacking most frequently the unmarried, or those who have had no children, but not confined to these. He says:]

The symptoms, as far as I have hitherto observed, are ushered in with occasional flushings of the face, succeeded by more or less perspiration, a sense of faintness, and subsequent depression of spirits; sudden pain then ensues, either occipital, frontal, or in the course of the longitudinal sinus, where, as with some women, the

hair is parted; the sensibility of the scalp is increased, and the pain is oftentimes momentary in its onset, and partial in its seat. As the disorder advances there is more or less noise in the head, described as humming, buzzing, singing, or rumbling; then comes on deafness of one ear, muscæ volitantes, palpitations, irregular action of the heart, an oppressed pulse, a weight over the forehead, or at the back of the neck: a frequent sense of formication over the face and chest, especially whilst the person is warm in bed, and about to lose herself in sleep, cramps in the legs, transient numbness in one arm, usually the left, and pain passing down the hand, and into one finger. Extreme mental and bodily depression, a peculiar feeling of dread hangs over the mind whilst the attack is hovering about them, and the least excitement, as the slamming of a door, or the double knock of a postman, will throw them into a most distressing fit of nervous suffering. The disorder is attended oftentimes with a species of fit, not unlike that of epilepsy, and anæsthesia, or paralysis, or both, of one arm and leg may occur and remain for several days.

One lady with whom I am acquainted has been seized, in addition to the above symptoms, with sudden pain in the lumbar region whilst walking the streets; and on two occasions has fallen down screaming piercingly with the attack; on another occasion it was brought on by being hurried into the carriage of a train which was in motion, and the alarm which she caused to the rest of the company was of no ordinary character. She is the mother of a large family, and is capable of undergoing great mental exertion when free from these symptoms.

The period of time at which the attack comes on, or is aggravated, is also worthy of remark. If the individual does not rise in the morning with these cerebral disturbances, they will come on in the after part of the day, and they are especially aggravated if a sense of hunger ensues and it is not speedily gratified. I should observe, also, that there may be flatulence, some constipation of the bowels, and a capricious appetite. A spontaneous separation of crystals of pure lithic acid, will oftentimes remove the distress for weeks, when it recurs with equal severity.

The individuals who appear most prone to these distressing symptoms are those who inherit a gouty diathesis, who live freely on animal food, and who have been the subject of great mental exertion. The stomach is the first organ which developes the attack, although the uterus, it should be observed, is the viscus originally in fault. There has been menorrhagia, or dysmenorrhœa, with more or less debilitating leucorrhœa.

The catamenia have been "dodging" the patient for some months, and, under an apprehension that this secretion was about to terminate altogether, the patient has kept silence upon the matter, and sought for no medical advice, until the constitution has become unstrung, the fluids vitiated, the stomach deranged, the mind harassed, and oftentimes not until then, have they been compelled to seek for medical aid. The physiognomy in such instances is frequently

very instructive; there is a sallow tint around the eye, a heavy expression of face, and a general sadness depicted in the countenance. They tell you that they are often seized with partial dimness of sight, duplex vision, or that they are deprived of the power of distinguishing one-half of a person's face, just as the late Mr. Abernethy was wont to describe to his class, when speaking of injuries of fracture to the crista galli of the ethnoid bone. One gentleman, Mr. A. used to remark, "could never read my name on the door; he always saw 'Aberne,' but not 'thy;'" and a patient now before my mind can sometimes discern the chin, mouth, and nostrils of any one before him, but the upper half of the face is covered with a mist; at another time, only the longitudinal half of the face can be discerned, and this symptom will remain for two hours or more, and be succeeded by an intense headache.

I am by no means disposed to assert that similar disorders of the nervous system do not spring up in the male subject also, but I consider these as incidental to the sex, whilst they are peculiar to the female sex. The gentleman just alluded to is of a very nervous temperament, ex-sanguine, and the subject of great mental excitement from time to time. He suffers from a constant sense of acidity on the tongue, and the saliva is strongly acid to litmus paper.

Many instances of the above malady have been erroneously classed under the titles "apoplexy," "cerebral congestion," "threatenings of cerebral effusion," &c., and the lancet, with local depletion, have been unsparingly employed. Such antiphlogistic measures have invariably added to the mischief, and have increased the patient's sufferings.

The explanation of these morbid changes and symptoms appears to be this: that the catamenial secretion, from some constitutional cause, which is probably seated in the organs of assimilation, becomes altered in quality and quantity;—the elements of this fluid are thrown back on the circulation, and morbid bile on the one hand, and a lithic acid diathesis on the other, is the ordinary result. There is no organ in the female economy that so readily partakes of disturbance from uterine irregularities as the liver; and the instances are not few where protracted menorrhagia has resisted astringents, quinine, and the ordinary treatment, whilst it has yielded to brisk and frequent purgation, with small intermediate doses of calomel, &c. In such cases the uterus takes on the action of the liver, and so long as the latter viscus is allowed to remain in its torpid condition, so long also will the uterus continue to pour out an undue quantity, or an altered quality of dark venous fluid, and the patient becomes enfeebled, harassed, and distressed; hemorrhoids are not unfrequently induced also. But no sooner, oft-times, do the remedies tell upon the hepatic branches of the portal system of the liver than the intestinal portion of the same system becomes relieved from its congested state, and the uterine discharge is shortly subdued.

It is from such observations that my mind was originally led out into the study of these painful attacks of the nervous system, and

I can confidently assert, that a very large number of women, who would have been treated ten years ago with frequent bloodletting, and other antiphlogistic remedies, have been perfectly convalescent from a totally opposite method. The stomach, liver, and kidneys, appear to be the principal organs which suffer from derangement, and, in order to restore to the former viscus its healthy tone and vigour, scrupulous attention must be paid to the diet. Veal, pork, salt meats, fried and broiled fish, vegetables, except potatoes, tea, pastry, and made dishes, or ragouts, wine, bottled beer, or any liquor containing a free acid, or gaseous matter, appear to aggravate the disorder in a marked degree. Mutton roast or boiled, fish, poultry, fresh game, cocoa nuts boiled, or coffee not too strong, and draught porter, is the most agreeable diet for such a stomach; but the benefit derived from taking six or twelve fresh oysters without any other food, or additions, as pepper, vinegar, &c., or even bread, upon an empty stomach, as for luncheon, for instance, has been most remarkable in some severe cases I have witnessed. Their alkalescent character has removed the morbid acidity of the stomach, whilst it has restored its tone and vigour, and the following draught has been ordered to be taken every morning on rising.

℞. Ammoniæ hydrochloratis, grs. x.; extr. taraxaci, ʒss.; dec. aloes comp.; mist. gent. comp. aa. ʒv.; sodæ pot. tartratis ʒi.; tr. lavendulæ comp., ♏xx. Fiat haustus.

If this aperient should not prove of sufficient activity, it must be repeated in the middle of the day; but if, on the other hand, it is too active, the draught may be only taken every other or every third morning, yet it is of greater importance that the alimentary canal should be freely acted upon once or more daily, than that it should be allowed to continue in a torpid condition.

The alvine evacuations are usually offensive, fetid, and so dark, that I have known them to partake of the character of the motions of a patient with melæna for several days together, and I am inclined to think that it is from the fact that practitioners do so rarely submit these excretions to ocular examination, that many cases of this disorder are misunderstood, and therefore mismanaged.

Another useful remedy is to clothe the loins with the emplastrum opii, (Ph. Lond.) or else with a long strip of new flannel; and, in order to assist the liver in its healthy functions, a warm bath and occasional friction over the skin with sand soap or a horse hair glove usually promotes the healthy action of the abdominal viscera.

Whenever the urine ceases to deposit lithates, and becomes a pale canary colour; and the evacuations from the bowels present a healthy appearance, and cease to emit a penetrating fetor, there is a co-existing amelioration in the sufferings of the patient. Her spirits are more buoyant, her mind less distressed, her appetite more even, and her whole frame less weary.

Thus have I briefly sketched the outline of this disorder, which, although I am sensible is but imperfectly done; yet, if it should be the means, please God, of leading the minds of some of my professional brethren to ponder over the concurrent testimony of such a

train of symptoms when they meet with them, and pause before they rashly conclude that they are wholly referrible to vascular congestion of the brain, and require active depletion, &c., for their alleviation, I shall be satisfied that my time in writing these lines has not been altogether thrown away, if the perusal of the same should be profitable to them as well as to their fellow creatures.

Medical Times, April 7, 1849, *p.* 451.

178.—*On the Treatment of Asphyxia Neonatorum.*—By J. O. Fletcher, Esq., Manchester.—[Referring to the plan of treating still-born children by the use of warm and cold water alternately, Mr Fletcher says:]

I have been in the habit for some years of treating all such cases in a very similar way, and with great success. I first immerse the child in warm water, and, upon withdrawing it, cover the chest with a cloth or sponge well soaked in cold water (the colder the better); again immerse it in warm water, and again apply cold water, so on alternately using the hot and cold water, until there is evidence of respiratory movements. The first application of cold will generally produce a slight sob, and repeated applications will establish respiration. I conceive the good arises from the sudden impression caused by the cold on the cutaneous nerves, (which are the principal) "*excitor nerves*" in the reflex action of respiration. This is followed by response along the "*motor nerves*" of this function, as the phrenic, intercostal, &c.; hence the sob on the first application, and the establishing of respiration by being repeated. I have, for an equally long period, been in the habit of ligaturing the cord before the complete birth of the child, in breech and feet presentations, sometimes even before the pulsations were obliterated, believing, as I do, that the child in these cases dies from hemorrhage into the placenta, arising from the umbilical vein being much exposed to pressure, by virtue of its superficial and unprotected position in the cord, which, together with the tenuity of its tunics, render it very liable to have its current obliterated, whereas the tunics of the umbilical arteries are firmer, and they themselves less exposed; thus they are in a measure protected from the consequences of slight pressure. Therefore, the flow of arterial blood through the vein may become obliterated, whilst the venous blood continues to flow along the arteries, from the child, into the placenta, without there being any counterbalancing stream; hence the great mortality in these cases by the usual treatment, and hence the utility of ligaturing the cord early, thereby removing one fatal consequence; and, as it is well known that a child can breathe in the vagina, its chances of life are, not to say the least, diminished, but, I think, much increased; for, out of thirty-seven cases that I have treated in this way, *two children only have died*, which is saying very much more than I can say for the usual treatment. In this class of cases especially, I think the good effects of alternate application of cold and warm water will be seen, if tried.

Medical Times, April 14, 1849, *p.* 479.

179.—*On Certain Forms of Sterility.*—By G. T. Gream, Esq. Surgeon-Accoucheur to Queen Charlotte's Lying-in-Hospital.—[After referring to extreme constriction of the orificium uteri externum, as a cause of sterility, Mr. Gream proceeds to say:]

There is also a state giving rise both to sterility and dysmenorrhœa, not discoverable by ordinary examination; it depends upon a constriction of the internal extremity of the cervix uteri, while the external opening remains freely dilated. This may be detected by the introduction of a small bougie, or of any instrument of that form, and it is not necessary to have recourse to inventions and probes for the uterus, of uterine sounds, or other such things, which, after their construction, are usually found to be of less use than instruments not made for the purpose.

The free dilatation of the os uteri is in such cases the object to be gained, and perhaps no treatment is attended with greater success, for in the majority of instances it is followed by impregnation.

Should there be tenderness either in the uterus or its neighbouring parts, it should be relieved previously to the attempt at dilatation; and sometimes even the abstraction of blood from the loins is necessary, or from the cervix uteri, by leeches, in order to relieve the inflammation consequent upon repeated excitement and irritation not followed by pregnancy. These symptoms are seldom present in any but women of full habit, and may generally be removed by the use of warm hip-baths, of laxatives, and a separate bed: but usually, in these cases, there is not that loss of general health that supervenes upon the non-consummation of marriage, as before described.

At first it is difficult to introduce a bougie of even a small size into the os uteri, under these circumstances, but after it has once been introduced, it can readily be followed by one somewhat larger, and perhaps a third, of still greater size. On the following day, or in some cases after a longer interval, a considerably larger bougie may be passed, and then a dilator may be introduced. I employed for many years an instrument made upon the same principle as the female urethra-dilator, with two blades, but without the wooden appendages that are attached to that instrument, so that when the blades are closed a simple round steel staff is formed. The point of this is inserted into the os uteri, and the dilatation effected by turning the handle until considerable resistance is offered to the further separation of the blades, or until the patient complains of sickness. I repeat this daily, unless much pain follows the process, and until the os uteri remains open, and is about the size of a goose-quill.

In order to facilitate the introduction of the dilator, the patient should lie on her left side, as in labour. I have in some succeeded more readily in dilating the os uteri by applying the dilator through the speculum, and I think there are sometimes advantages in using this instrument.

[Mr Gream does not approve of the plan of incising the cervix uteri, both on account of the alarming hemorrhages which sometimes attend the operation, and the cicatrices which are its ultimate result. He observes further:]

Sponge tents have also been introduced into the cervix uteri for the purpose of dilatation, and in some instances they might succeed; but the use of the dilator appears to me to be both safe and more certain. I have therefore preferred it to any other mode of dilatation.

The supposed cases of ante-flexion, and retro-flexion, &c., as causes of sterility, hardly require notice, so rarely do they, if ever, occur; nor would the practice of introducing instruments into the uterus, and causing them to be retained there, call for any comment, if it were not right to warn those who may be inclined to try experiments, against the harm that may arise from such introduction.

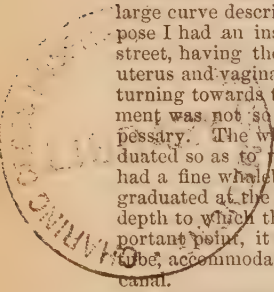
Lancet, Feb. 24, 1849, *p.* 204.

180.—*On a Method of Introducing Bougies into the Fallopian Tubes, for the Relief of Sterility.*—By Dr. W. Tyler Smith.—[Believing many cases of sterility to depend upon obstruction of the Fallopian tubes, Dr. Smith was induced to seek for a method of removing such obstructions by the introduction of bougies into the tubes. There is a method of introducing a fine whalebone bougie into the cavity of the tympanum by passing it along a catheter introduced into the Eustachian tube; and it appeared to Dr. Smith that a similar operation might be applied to the Fallopian tubes. Dr. S. says:]

The following is the manner, accompanied by all the cautions I could devise, in which I determined the practicability of the Fallopian operation. I procured the uterus and appendages from a subject who had never conceived, and having first divided the uterus into two symmetrical halves, I moulded a small tube of flexible silver into such a shape, that when passed through the os uteri, it pointed accurately to the uterine mouth of the Fallopian tube on one side. It was necessary to arrange the tube so that it should pass through the os and cervix uteri in the undivided organ, and not only point towards the Fallopian angle of the uterus, but also direct a fine fibre passed into the silver tube, in the line of the Fallopian canal. The proper shape was obtained by a short abrupt curve at the extremity of the catheter. After this I ascertained, by trying the tube thus bent, upon a perfect uterus, that it could be passed with ease into the uterine cavity, directed towards the orifice of the Fallopian tube, and withdrawn again from the uterus. I next ascertained the calibre of the canal of the Fallopian tube, by using fine wires of different sizes; and having prepared a whalebone bougie of the proper fineness, I found it could be directed with the utmost accuracy towards and into the Fallopian tube. The Fallopian angle of the uterine cavity is so acute, and the internal surface so smooth and dense in this situation, that it is almost im-

possible for the whalebone fibre to miss the tube. This readiness of the passage of the bougie is favoured by the anatomical shape of the uterine cavity. In the middle of the triangular cavity of the upper part of the uterus, the anterior and posterior walls project so as to touch, or nearly to touch, each other; but, from the orifice of the cervix to the Fallopian tubes on each side there are two lateral sulci, or grooves; and there is also another groove, extending at the fundus uteri from one Fallopian tube to the other. This triangular sulcus thus surrounds the promontories in the anterior and posterior uterine walls. The groove at the fundus is very useful in directing the beak of the catheter to the Fallopian orifice. Of course it is necessary to have two silver tubes or catheters, one for the left, the other for the right Fallopian canal.

After making these preparatory observations on the uterus and Fallopian tubes, when removed from the body, it became necessary to alter the apparatus so as to suit the living subject. The only modification necessary was to adapt the tube or catheter to the large curve described by the vagina and the uterus. For this purpose I had an instrument made by Mr. Thompson, of Windmill-street, having the curve of the uterine sound to adapt it to the uterus and vagina, and an additional lateral curve at the extremity, turning towards the Fallopian tube. When completed, this instrument was not so large as the uterine sound, or the intra-uterine pessary. The whole of the uterine length of the catheter was graduated so as to measure the depth of the uterine cavity. I also had a fine whalebone bougie, very flexible at the extremity, and graduated at the handle like Gairal's bougie, in order to show the depth to which the extremity enters the Fallopian tube. The important point, it will be seen, was that of obtaining a directing-tube, accommodating itself to all the different curves of the sexual canal.



An opportunity soon presented itself, and I attempted the operation on the living subject. The patient was about twenty-five years of age, the uterus had never been impregnated, and was in the normal situation. I mention this, lest it should be supposed to have been a case of prolapsus, in which the operation of course would be more easy and simple. Having lodged the os uteri in one of Mr. Fergusson's specula, I first passed the uterine sound to the fundus uteri, so as to assure myself that no uterine impediment existed; after this, I passed in the Fallopian catheter very readily, and directed it towards the left Fallopian orifice. Steadying the catheter in this position with the left hand, I introduced the whalebone fibre through the catheter, and into the Fallopian tube, for about an inch and a half, with the greatest ease,—indeed I was surprised at the ease with which it passed; but this I attributed to the great care I had taken in maturing my plan beforehand. I withdrew and re-introduced the bougie several times, without producing any pain or uneasiness whatever. In fact, the only difficulty met with was in passing the sound through the constricted portion of the cervix uteri.

In the operation upon the Fallopian tube, the patient was not at all conscious of any sensation of any kind, more than from the ordinary specular examination. I found it easier of performance upon the living than the dead subject; or rather I was able to pass a larger bougie than would have entered the Fallopian tube of the preparation. From my subsequent observations, I have no doubt whatever that the calibre of the tube is greater in the living than in the dead, owing to the contraction which occurs in the tissues of the latter. I have now performed the operation repeatedly, in the same manner, without pain or difficulty, or any subsequent inconvenience whatever, as far as the mouths of the tubes are concerned. When the tubes are not imperforate, they can, with due care, be readily operated upon, if the sound can be passed to the fundus uteri. Of course it is necessary that the operator should be familiar with the use of the speculum, so as to command the os uteri with ease; and the uterus must not be materially displaced, otherwise the utero-vaginal curve of the instrument will not be adapted to the curve of the organs themselves. Where any difficulty is experienced, it will not be at the Fallopian tubes themselves, but before reaching these organs. This is in consequence of the very different state of the vagina and the os and cervix uteri in different women. The os uteri and the uterine cavity should be in a healthy state at the time of the operation.

Lancet, May 19, 1849, *p.* 529.

181.—ON THE MODES OF EXPLORATION FOR OVARITIS.

By Dr. E. J. Tilt, Physician to the Farringdon General Dispensary, &c.

[Dr Tilt ascribes the imperfection of our knowledge on the subject of ovaritis in part to the peculiarity of the modes of examination requisite to ascertain its existence. In describing these methods, he speaks, first, of *abdominal examination.* This, it is almost needless to say, must be performed with the patient lying on her back, with the head and shoulders elevated, and the thighs flexed, the bladder and intestines having been previously emptied. The medical man should warm his hands before touching the patient; and while manipulating the abdomen, should ask such questions as may engage the patient's attention, and so prevent the contraction of the abdominal muscles. As to *exploration per vaginam,* Dr. Tilt says,]

To derive the greatest amount of information from a vaginal exploration, the medical attendant should be placed on that side of the patient where ovarian tumefaction is rendered probable by pain or other signs, and he should use the index finger of the hand corresponding to that side, while he places the other hand on the hypogastric region, so as to press the ovary forcibly down towards the

exploring finger. My instructor and most esteemed friend, Professor Recamier, is in the habit of passing his hand under the patient's thigh instead of above it, and finds that this mode of practice affords him greater facilities of investigation. We are thus easily able to detect moderate-sized pelvic tumours, particularly if, as is often the case, they have gravitated towards the recto-vaginal space.

If the tumefaction is less considerable—if there be only that degree of ovarian congestion which partly produces the phenomena of painful menstruation, &c., the ovary may still be situated above the vagina, and then, in order to feel it digitally, the vaginal cul de sac, which surrounds the os uteri, must be raised. To effect this purpose, it is necessary to press the perinæum with the three bent fingers, and, when possible, to introduce both the middle and index fingers into the vagina, which gives an additional third of an inch to the exploring instrument. We are thus enabled to estimate the amount of pain caused by pressure on the swollen ovaria, as well as the degree of heat of the vagina, and whether its superior curve is elastic, or hard and resistant, as if infiltrated. Professor Simpson and Dr. Gendrin state, that in numerous cases they have felt enlarged ovaries *in situ* by bringing the organ between two fingers introduced into the vagina, while the other hand was pressed down into the brim of the pelvis on the same side. The uterus, in Dr. Simpson's opinion, requires to be anteverted, and somewhat turned to the opposite side with the uterine sound, in order to stretch the broad ligament of the side under examination. He first ascertained the possibility of making this examination of the ovary in a case of natural anteversion of the uterus. When the tumour has so increased that it is no longer entirely situated in the vicinity of the vagina, but has ascended towards the brim of the pelvis, the finger, though it cannot reach its whole extent, will still afford valuable information respecting its position and state. Thus the tumour may depress the uterus to the right or to the left, may flatten it against the pelvis, causing its complete retroversion, and thus render it impossible for the finger to attain the os uteri. M. Robert, of Paris, has met with several cases of this description. We are also able to examine the condition of the inferior segment of the uterus, and to ascertain how far its usual mobility has been encroached upon, and to what extent this organ has been bound down by the thickening and infiltration of the adjacent inflamed tissues.

By a vaginal exploration we are able to discover whether the tumour is intimately connected with the body of the uterus, or only placed in close juxtaposition to it; thus, in puerperal congestion of the broad ligaments, the tumour is often so moulded as to cap the uterus. In such cases it is interesting to ascertain whether these bodies adhere intimately, for if the movements communicated to the tumour through the abdominal parietes, are felt by the finger placed in the vagina, we may suppose that the tumour and the uterus are intimately connected: we also obtain a correct notion of

the diameter of the tumour, one of the extremities of which is at the hypogastrium, and the other in connexion with the vagina. The fluctuation of an abscess of the ovaries, or of their surrounding cellular tissue, may sometimes be distinctly felt by a manual examination, particularly after parturition; but even then it is necessary to support the tumour by placing the finger in the vagina, otherwise, the semi-mobility of the whole tumour might easily be mistaken for the mobility of its contents. When thus exploring, it is sometimes possible to detect a correspondence of fluctuation between the hand on the hypogastric region, and the finger in the vagina. When the tumour is situated sufficiently low down, fluctuation may be detected by examining the patient per vaginam; two fingers (the index and the middle finger) being introduced into the vagina, and placed so as to circumscribe a segment of the tumour. One finger must then be firmly applied to the tumour to receive the shock transmitted by the fluid, while percussion is made with the other finger on the opposite side of the tumour. In the meantime, an assistant, by firmly pressing in the hypogastric region, forces the fluid to accumulate as low as possible in the pelvis. The facility of thus discovering fluctuation will be in direct proportion to the thinness of the parietes of the tumour, and its prominence in the vagina. If this mode of investigation fails to render evident the existence of pus, the presence of which is otherwise indicated by rational symptoms, an exploratory puncture will decide the question without subjecting the patient to either much pain or imminent danger.

Exploration per rectum.—Notwithstanding Dr. Simpson's assertions to the contrary, I agree with Stoltz and Hertz, (both distinguished professors of the faculty of Strasburg,) with Löwenhardt, Cherau, and Dr. Ashwell, that it is possible to reach the ovaries, in their natural situation, by this mode of exploration, and thus to appreciate their volume and their degree of sensibility. Whatever difference of opinion may exist upon this point, all agree, that on account of the thinness and elasticity of this membranous canal, even slight swellings of the ovaries or the neighbouring tissues may be thus easily detected; and that when the tumour is considerable, it may be the more readily distinguished from the uterus. The advantages to be derived from rectal examination have been more clearly defined by Dr. Cherau than by any other author.

"An exploration per rectum," says this writer, "is one of our most important elements of diagnosis; for by this means we can reach the posterior aspect of the uterus, and can distinctly appreciate the ovary, even if but little swollen. When its structure is healthy, no pain is experienced on pressure of the ovary; but when it is inflamed, the patient often expresses, by her features, that we touch the seat of the disorder. While examining per rectum with the one hand, the other should be placed on the region of the ovary on the same side, the finger being in the rectum, and the physician pressing gently, but suddenly, with the other hand, on the ovarian region. The patient will then experience, in the posterior part of

the pelvis, a pain similar to that felt when the ovary was directly pressed by the finger. Pressure on the ovary also produces as much pain in the inguinal region as if that were the actual seat of the impact. If the ovary be tolerably swollen, and the abdominal parietes thin, it is possible, by pressing the ovarian region, to force the ovary against the finger; and this will frequently cause the patient to exclaim that we hold the complaint between our fingers." —*L'Union Médicale*, June 3, 1848.

Is it necessary to state, that if a fluctuating tumour be situated in the immediate vicinity of the rectum, nothing will be easier than to detect fluctuation by a rectal exploration?

Double touch.—I have given the name of "double touch" to a mode of exploration, wherein the two previous modes are combined, so that the index-finger being placed in the rectum, and the thumb in the vagina, it is possible to embrace between the thumb and finger any intervening morbid growth. This mode of exploration is not, I believe mentioned by authors; or, if alluded to, its value has not been sufficiently pointed out. I have seen it sometimes employed, on the Continent, by several eminent men; but Professor Recamier has principally insisted on, and practically exemplified, its utility, as I shall have occasion to show, in certain interesting cases. It is particularly useful in enlightening us respecting moderate-sized tumours. which are not large enough to rise above the brim of the pelvis, and still small enough to escape identification by the finger, in the rectum or vagina alone. It enables us to seize the antero-posterior diameter of the tumour, and to recognise its position: and it prevents our mistaking the uterus for a morbid growth. If, as is often the case, the recto-vaginal space is the seat of the tumour, by thus practising the double touch, and pushing up the perinæum, by pressing on it with the first inter-digital space, we can embrace the accessible part of the tumour, and easily detect its fluctuation if fluid be present.

[Dr. Tilt adduces several cases to shew the great value of this mode of examination.]

Lancet, March 10, 1849, *p.* 263.

182.—*Case of Ovarian Dropsy, spontaneously Cured.*—By Dr J. Hughes Bennett.—Anne Pyper, aged 25, admitted into the Royal Infirmary, Nov. 8, 1848. She had been delivered fourteen days previously of a male child, in the Maternity Hospital; the labour presented nothing unusual. After the birth, the abdomen continued enlarged, and at first led to the suspicion that another fœtus remained in the uterus. After a time, the true nature of the case was rendered manifest, and a large swelling was detected, which was moveable to a certain extent ,and presented all the characters of an encysted tumour of the left ovary.

When I first examined her, I found the abdomen swollen to about that of the sixth or seventh month of pregnancy. The tumour extended from the epigastrium to the pubis, but bulged considerably towards the left side. Its surface was irregular; and two large

nodules, each the size of a cocoa-nut, existed about its centre. It was tense and firm to the feel, somewhat elastic, and without fluctuation. The tumour was firmly fixed, and the seat of constant pain,—especially in the left lumbar region,—which was increased by pressure, by lying on the right side, or on assuming the erect posture. The urine was of a slight yellow colour, and normal; the digestive, respiratory, circulatory, nervous, and integumentary organs appeared to be healthy. She had observed the tumour seven months before her delivery; and it has gone on gradually increasing, and been somewhat painful, from the first. *Eight leeches were ordered to the most painful part of the abdomen.* The local pain was relieved by the leeches. On Nov. 12, my attention was directed to the urine, which presented a copious white deposit, occupying two-fifths of the jar, while the supernatant portion was of a light amber colour, and unusually viscid. The deposit was determined, by the microscope, to consist of pus, mingled with a few compound granular corpuscles. The clear portion was strongly coagulable by heat and nitric acid. At first I imagined that the cyst had burst into the vagina; but the patient and nurse assured me that there was no discharge between the intervals of micturition, and that all the fluid came from the bladder. The urine presented the same characters during the next three days,—the amount discharged, during the twenty-four hours, being about three pints. On the 15th, the tumour had somewhat diminished in size, its hardness and tensity had disappeared, and distinct fluctuation was perceptible in it. *A broad flannel roller was ordered to be applied firmly round the abdomen, and compression made by means of paste-board, previously soaked and modelled to the abdominal surface.*

From this time, the abdomen rapidly diminished in volume, while the amount of purulent viscous fluid discharged from the bladder, varied from three to five pints in the twenty-four hours. The appetite and general health continued good; and she was ordered nutritious diet, with four ounces of wine daily. On the 23rd, the amount of pus contained in the urine was greatly lessened, and the clear portion presented only a slight haziness on the addition of nitric acid. On the 27th, the abdomen had regained its natural size, although a dense mass—evidently the collapsed ovarian sac—could readily be distinguished, occupying the left iliac and hypochondriac regions. The urine now was natural in quantity, and presented only a slight sediment, consisting of oxalate of lime, and a few pus globules.

From this period, she may be said to have recovered. She suffered occasionally from uneasy feelings on the left side, sometimes amounting to pain, which were relieved by the application of four leeches, followed by a small blister. She was dismissed on the 18th of December, expressing herself as being well in every respect. The indurated mass in the left iliac region was greatly diminished in size, but still very perceptible to the feel, though not to the eye. —*Monthly Journal, Feb.* 1849.

London Journal of Medicine, March, 1849, *p.* 285.

183.—*On Ovariotomy.*—By Dr. C. Clay, Manchester.—[At a meeting of the Sheffield Medical Society, Dr. Clay gave the following account of the results of ovariotomy in his own practice.]

He said the operation had been brought under his notice by Mr. Lizars in 1822, and in 1842 he performed his first operation. His three first operations were successful. He had now opened the abdominal cavity 39 times. Dr. Clay gave the following analysis of the results of his operations:—

1—Purely uterine; fatal immediately after the operation; diagnosed correctly as fleshy tubercle of the uterus; the tumor weighed twenty-seven or twenty-eight pounds.

1—Large uterine tumour with ovarian disease. Fatal.

1—Large ovarian tumour with enlargement of the uterus. Tumour and uterus removed. Fatal from the effect of a fall on the fourteenth day after the operation. The incision had healed, and the patient was apparently convalescent.

5—Exploratory only; the operation not proceeded with; of these, four recovered, and one died twenty days after the operation.

31—Cases of uncomplicated ovarian disease. Of these, 22 recovered and 9 died. One has since died of fever, five years after the operation.

Recoveries (including exploratory incisions) 26; deaths, 13.

Dr. Clay was rather doubtful as to the value of chloroform in ovariotomy. The two cases in which he had used it were both fatal. In other operations he had used it with the best results. He had less dread of adhesions now than formerly, and he would now have completed the operation in three out of the five exploratory cases in which the operation was abandoned. On meeting with a very firm adhesion, he would in future adopt the plan of cutting round the adhesion, leaving the adherent portion of the sac attached to the abdominal parietes, omentum, or bowel. The majority of cases of ovarian disease are situated in the right ovary. He had examined nearly five hundred cases, and four-fifths were of the right ovary. He considered that tapping should be deferred as long as possible; when once performed it must be repeated more and more frequently till it becomes necessary every ten or fifteen days. Dr. Bird's plan of a small incision is not applicable in large and solid ovarian tumours, or where any adhesions exist; nor could Mr. Brown's plan of compression succeed in large and solid tumours. Three of Dr. Clay's cases were successful from the ulcerative process, the removal of the disease being impracticable. He considered the temperature of the room at the time of the operation of the greatest importance; the operation should never be commenced if the temperature of the room is below 71 or 72 degrees, and on this account he preferred a small room to a large one for the operation, as being more readily heated. One of Dr. Clay's patients became pregnant after the removal of one ovary, thus proving the sufficiency of one ovary for the process of conception. He regarded the third and ninth days after the operation as peculiarly critical.

Provincial Medical and Surgical Journal, March 7, 1849, p. 132.

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ADDENDA.

184.—ON THE PATHOLOGY AND TREATMENT OF EPILEPSY.

By Dr. R. B. Todd, F.R.S.

[The following valuable remarks were published too late to be introduced in their proper place, in the former part of this volume (at page 68), and we therefore give them here.

Dr. Todd first directs our attention to the consideration, What part of the nervous centres is mainly disturbed in epilepsy? Though there is no doubt that the spinal cord *is* disturbed during the complete paroxysm, yet, Dr. Todd says,]

The nature of the convulsions shows that the spinal cord is not primarily affected. In my former lectures I have shown that the character of the convulsion dependent on primary irritation of the spinal cord is *tetanic*, with more or less rigidity of the muscles and opisthotonos; and this can be clearly demonstrated by experiment. But although the convulsions of epilepsy are often complicated with a good deal of tetanic spasm, they nevertheless always present features which distinguish them, in a very marked way, from the tetanic convulsions, by the alternate contraction and relaxation,—violent combined movements, resembling voluntary acts, succeeded by relaxations, to be again succeeded by violent contractions.

Furthermore, if the spinal cord were affected primarily, we could not explain the sequence of the phenomena in the complete paroxysm of epilepsy.

If the spinal cord were primarily disturbed in epilepsy, the sequence of the phenomena would be—first, muscular disturbance, in consequence of the state of disturbance of the cord; then impairment of consciousness, in consequence of the extension of the disturbed state of the cord to the brain.

Now the natural sequence of the phenomena is—first, loss of consciousness; secondly, muscular convulsions.

Moreover, the supposition of the primary existence of disturbance of the spinal cord leaves us altogether without the means of explaining the phenomena of that form of epilepsy which in its consequences to the patient is quite as formidable as that accompanied by convulsions. I mean that form which consists simply in loss of consciousness, which lasts for a variable term, and then the patient recovers himself.

Lesions of the spinal cord, it is now well known, do not affect consciousness. You may have nearly the entire cord severed from the brain, and yet consciousness will be retained. A man falls from a height and fractures his cervical vertebræ, smashing a considerable portion of the cervical region of the spinal cord; he is taken up paralysed, in both sensation and motion, at all points below the head, but *consciousness is undisturbed.*

In the convulsive diseases confessedly spinal in their origin,—namely in tetanus and laryngismus,—consciousness is undisturbed, or but slightly affected, however violent the convulsions may be.

It seems, therefore, certain, not only that a highly disturbed state of the spinal cord will not impair consciousness, but also that that state of disturbance of the cord is not prone to extend itself to the brain, and to interrupt the functions of that organ.

And these arguments applied to the ordinary spinal cord of anatomists—the intra-spinal nervous mass—are equally opposed to the location of the disease in the true spinal cord of Marshall Hall, or in the sensorium commune of Prochaska. The sensorium commune of Prochaska is the spinal cord *plus* its inter-cranial continuation as high up as the crura cerebri. But primary irritation of this latter part produces the same phenomena as that of the spinal cord, with the addition of more or less laryngismus; therefore it is not the part first affected in the epileptic fit.

It is plain, then, that the primary disturbance in the epileptic paroxysm must be located in some part of the brain.

Now this organ is divisible into certain parts, each of which, there can be no doubt, enjoy a separate proper function, notwithstanding that all the parts are intimately united to each other.

These parts are—

First the hemispheric lobes, consisting of the convolutions and the large mass of fibrous matter connected with them.

Second. The corpora striata and the optic thalami, in intimate connection with,

Third. The medulla oblongata.

Fourth. The corpora quadrigemina, in intimate connection with, and part and parcel of the mesocephale.

Fifth. The cerebellum.

Pursuing the method of exclusion, I hope to arrive at the determination of the part, the disturbance of which gives rise to the phenomena of epilepsy and of the epileptic paroxysm.

I shall first eliminate the medulla oblongata. An affection of this part, such as could provoke convulsions, would give rise to *tetanic*, not *clonic* convulsions; and in some cases, it would act so powerfully and so directly upon the muscles of respiration, that it would probably in many instances annihilate that process altogether. It is true, indeed, that a certain extent of laryngismus often complicates the epileptic convulsion; but primary disturbance of the medulla oblongata would render laryngismus a constant and necessary accompaniment of the epileptic fit, *which is not the case.*

Primary affection of the medulla oblongata does not explain the early and constant loss of consciousness, which is pathognomonic of epilepsy, and which is often its *only* symptom.

Diseased states of the medulla oblongata show themselves in impaired deglutition, in vomiting, in altered rhythm of the respiratory movements, in an abnormal proneness to emotional excitement, but not in impaired intellectual action, nor in any affection of consciousness.

We cannot admit, then, that epilepsy is due to a primary disturbance of the medulla oblongata.

We come next to the corpora striata and optic thalami. These remarkable ganglia, although intimately connected with each other, are nevertheless very different in structure, and probably, also, very different in function. They are no doubt directly concerned in the development of voluntary motions and of sensation, and their intimate anatomical union is in harmony with the close connexion and interdependence of sensation and motion. They have nothing to do with intellectual operations, and therefore not with consciousness; their functions seem limited to the simple exercise of the will, or to that of the perception of some impression made on a sentient organ. If the corpus striatum or optic thalamus be diseased, you have paralysis of motion or of sensation, or both; but a sound state of intellectual power, and of the consciousness, is quite compatible with extensive disease of both of these organs, provided it does not extend beyond them. Mechanical irritation of these bodies does not produce convulsions, nor does any morbid state of them ever give rise to these disturbances of motion. It is clear, then, that these bodies can no more claim to be the seat of the primary disturbance in epilepsy, than the medulla oblongata.

Has the cerebellum any share in the production of epilepsy? I think we must answer this question in the negative likewise. The cerebellum has no influence on consciousness: the absence of the cerebellum is perfectly compatible with consciousness and a certain amount of intellectual power, and these powers remain intact even where there is considerable disease of that organ. Moreover, mechanical irritations of the cerebellum do not give rise to convulsions.

There remain, then, only two parts of the brain in which we can localize the primary disturbance in the epileptic paroxysms—namely, the hemispheric lobes, and the mesocephale.

I will at once confess that my reflections upon this subject have led me to the conclusion that both these parts of the brain are greatly concerned in the production of the epileptic state, and in the development of the paroxysms. First and mainly, the hemispheric lobes; secondly and consecutively, the mesocephale.

You will bear in recollection that the complete epileptic paroxysm exhibits two features essentially distinct from each other: first, the loss of consciousness; secondly, the convulsions. The loss of consciousness and the other mental phenomena are dependant upon a disturbed state of the hemispheric lobes; the conclusions upon a

disturbance of the mesocephale, consecutive to, and derived from, the disturbance of the hemispheric lobes.

There is no point in physiology more clearly made out than that the organ which is immediately active in the manifestation of intellectual operations is the convoluted surface of the brain, and the fibrous mass connected with it—the hemispheric lobes. Every fact in comparative anatomy points to this conclusion. Experiment confirms it likewise. When the hemispheric lobes are removed from a pigeon, as in Flourens' celebrated experiment, which I have more than once repeated, the animal became a mere living machine, capable only of manifesting the physical phenomena of life, exhibiting no indication of mental operation nor of consciousness: it fell into the deep unconsciousness of epilepsy.

In all instances where the nutrition of the cerebral hemispheres is disturbed, the intellect suffers; you have delirium or a maniacal state; or if the disease be of a kind tending to check nutrient change, or to destroy it, you have more or less sopor.

So, also, inflammatory states of the arachnoid and pia mater covering the convolutions of the brain, disturb the intellectual operations, because they are so intimately connected with the hemispheric lobes, being as it were the carriers of nutrition to them, that the nutrition of these membranes cannot be disturbed without perverting that of the convolutions themselves.

Although it is perfectly true, that the brains of persons dead of epilepsy in its earlier periods will exhibit, as Foville remarks, "nothing, absolutely nothing, which differs from the normal state," unless they have died in the attack, when the cerebral congestion which exists is, in the words of the same distinguished physician, "a feature not of epilepsy, but of the state of asphyxia induced by it, and in which the patients have died;" still, in the more advanced stages of the disease, when the patients have experienced many fits, morbid appearances are met with, and these affect the hemispheres of the brain chiefly. You have among the most common, opacities and thickening of the membranes, shrinking of the convolutions, enlargement of the sulci between them, increased subarachnoid fluids, alterations of colour and consistence of the grey and white matter of the hemispheric lobes. These alterations must be looked upon as the accumulated effects produced by the various paroxysms. Each fit does some amount of damage to the brain: in the interval the brain recovers itself to a great degree, when a new fit comes on, and new mischief is done; and so the repetition of the paroxysms leaves the brain altered as I have described it.

But, observe, the alterations are not of the cerebellum, nor of the medulla oblongata, nor of the corpora striata or optic thalami,—but of the hemispheric lobes.

But an important question remains: Can a disturbed state of the hemispheric lobes induce or excite convulsive movements? The proper answer to this question appears to me to be this: under ordinary stimulation of the substance of the hemispheres, the fibres

are incapable of exciting motion. It is not the office of these fibres to propagate the nervous force to muscles, but to other nervous centres. Their function is to establish communications between the great sheet of vesicular or grey matter which covers the convolutions of the brain, and the corpora striata, optic thalami, and mesocephale, so that changes in any of these centres may be propagated from any one to any other, or to all the rest. Hence the sections and irritations by mechanical and galvanic means to which these fibres have been subjected in the hands of various experimentalists, produce no disturbance of motion, so long as the irritation is strictly confined to them.

So far, then, anatomy and experiment denote to us that of themselves these fibres of the hemispheric lobes cannot excite motion, but that they may do so through their influence upon other ganglia of the brain; and such phenomena as I have referred to at the commencement of the lecture, as a convulsive affection of the whole of one side of the body, evidently brought on by the deposition of tubercular matter on the surface of the cerebral hemisphere on the opposite side, and its consequent irritation, show that convulsive movements may be excited by a superficial lesion of the hemispheric lobes.

Hence we must not deny to these lobes a certain power of exciting motion, either directly or indirectly, through their influence upon other ganglia of the brain. But it is important to remark that the influence of the hemisphere is most manifest for this purpose when the lesion is superficial; that is, when it affects the grey matter. A deposition of tubercle, such as took place in the case I described at the commencement of the lecture, would produce little or no disturbance if it took place in the white substance: it would interrupt the functions of some of the fibres; but when deposited in the vesicular matter, among the particles of the generating plate of the nervous battery, the development of the nervous force becomes seriously impaired.

From all these facts, then, I infer that a disturbed state of the hemispheric lobes may undoubtedly give rise to so much of the phenomena of the epileptic paroxysms as refers to the affection of consciousness and sensibility, and that it may, *in some degree* at least, contribute to the development of the convulsions.

We must not forget that, in forming a theory of the pathology of epilepsy, we have to explain not a continuous state of disturbed sensation and motion, but a malady, the grand feature of which is the *periodical* recurrence of the paroxysms, the patient being wholly or almost restored to his normal state in the intervals between the attacks.

Now, it is not a little remarkable that there is no organ in the body which exhibits the same kind of periodical activity and quiescence in the performance of its functions, *as the hemispheric lobes*. The periodicity is manifest in the phenomena of sleep: throughout life the tendency exists, that for a certain period each day the state of sleep comes on—when intellectual acts cease, the will is not

exerted, the perceptive powers remain quiescent, the channels of sensation are closed. This tendency is greatest in the early periods of life than at any other time—greater of all in infancy, when sleep engrosses the largest portion of time: very marked in childhood, less imperious in adult life, but assuming a somewhat increased influence in second childhood—OLD AGE.

I say, then, that the periodical character of the phenomena of the normal nutrition of the hemispheric lobes of the brain denotes strikingly that these organs have much to do with the primary disturbances which cause those periodical paroxysms which constitute epilepsy.

But there is another part of the brain to which I think we must assign some share in the production of epilepsy.

This is that part of which the corpora quadrigemina form a prominent portion—the upper and posterior part of the mesocephale, the nodus encephali, the connecting medium between the several parts of the encephalon, which is not only anatomically related to all the constitutional parts of that organ, but possesses inherent powers of its own of great and general influence upon the movements of the body.

I have already referred to this part in my last lecture, as being the centre of emotion: as such, it is much influenced by mental states; and we know that epilepsy is often brought on by the shock produced by seeing another fall into a fit.

Flourens states, that while superficial sections of the corpora quadrigemina produce no other effect than the impairment or loss of vision, deep sections produce general convulsions.

I have been desirous of ascertaining whether the parts within the cranium, if excited by the stimulus of galvanism, would give rise to any phenomena similar or analogous to those produced by galvanic stimulation of the spinal cord. Accordingly, I determined to subject them severally to the action of the magneto-electric rotation machine,—a most convenient instrument for physiological experiments.

The experiments were performed on rabbits. I took the spinal cord first: here we had the well-known tetanic effects to which I have already frequently referred.

Next I tried the medulla oblongata: the effects of the stimulation of this organ were much the same as those produced by irritating the cord.

I then tried the corpora quadrigemina and the mesocephale. Having passed fine brad-awls into the cranium in such a direction as I had previously satisfied myself would lead to this organ, I subjected it to the influence of the machine: general convulsions were produced, of a character essentially different from those which resulted from stimulating the spinal cord or the medulla oblongata. They were combined movements of alternate contraction and relaxation, flexion and extension, affecting the muscles of all the limbs, of the trunk, and of the eyes, which rolled about just as in epilepsy.

On inserting the awls into the hemispheric lobes, still different effects were produced by the application of the machine. I could observe nothing like true convulsions; but slight convulsive twitchings of the muscles of the face took place, which were no more than what would be caused by the stimulus of galvanism acting upon the nerves of the face.

These experiments, which I repeated several times, and each time with like results, seem to denote that convulsions are modified according to the part of the cerebro-spinal axis which is primarily excited: if it be the spinal cord, they are tetanic; if the medulla oblongata, they are tetanic likewise, other parts being involved; if the corpora quadrigemina and the mesocephale, they are epileptic; if the cerebral hemispheres, you scarcely have any convulsions, but slight twitchings of the muscles.

Weber, in his excellent essay on Muscular Motion, published in Wagner's "Handworterbuch" of Physiology, refers briefly to similar experiments, performed by himself on the brain of a frog, and leading to the same results; and he draws this conclusion, that "the tonic convulsions, as trismus and tetanus, are the effect of disturbance of the functions of the spinal cord; whilst the clonic convulsions are due to derangements of the functions of certain parts of the brain."

Thus, then, I come to this conclusion respecting the parts of the nervous system which are directly concerned in the production of the epileptic paroxysm.

The part of the encephalon primarily disturbed, is the hemispheric lobes: if the disturbance do not go beyond a certain point, the phenomena are limited to loss of consciousness and impaired intellectual action, with more or less of sopor. But if the disturbance be considerable, then the tubercula quadrigemina and mesocephale become involved, and *epileptic convulsions* are produced. If the disturbance of this centre be very great, the medulla oblongata and the medulla spinalis become much excited, and the convulsions are complicated with a good deal of the tetanic character.

We know that there is great variety in the intensity of the epileptic paroxysm, *i. e.*, not only in the intensity and duration of the coma, but also in the violence of the muscular paroxysm: all this depends on the nature and force of the primary disturbance in the cerebral hemisphere, but in all instances the hemispheric lobes are first disturbed, next follow the corpora quadrigemina, and upon the intensity of their disturbance depends the extent to which the medulla oblongata and the spinal cord are engaged.

[Dr. Todd next discusses the question of what is the "intrinsic nature of the disturbance of the brain in this malady, and the exact organic condition of it which is capable of exciting the epileptic phenomena."]

Is it (says he) a state of inflammation? or one of congestion? or is it a condition the opposite of congestion—one of deficiency of blood? or, in fine, is it a perverted nutrition, due more to a depraved

quality of blood, rather than to alterations in its *quantity*, but by no means independent of the latter?

[Dr. Todd states confidently, that the morbid state is neither one of inflammation, nor, as is more commonly believed, of congestion. He shows that anæmia, a state the opposite to that of congestion, favours the occurrence of epilepsy; and that frequently enormous congestion of the brain occurs, in cases of asthma, chronic bronchitis, and suffocative catarrh, without inducing anything like the epileptic state. Dr. T. then proceeds to consider Dr. M. Hall's views of the pathology of epilepsy. He says,]

Dr. Marshall Hall attributes much of the phenomena of epilepsy to vascular congestion. He has put forward the following theory of epilepsy. He says:—"1. Some source of irritation, acting in a reflex or direct manner, excites the spinal system. 2. Contraction of certain muscles of the neck, compression of the veins, and congestion of the cerebrum, with cerebral symptoms—cerebral epilepsy—are the consequences. 3. Then follow laryngismus, with every formidable convulsive symptom, spinal epilepsy, and congestion of the encephalon in a tenfold degree, with all its dire effects on the intellect and on the limbs."

Admitting, as I do, the great ingenuity of this theory, I cannot accept it as a correct explanation of the phenomena of epilepsy, or as adequate to explain the various and complicated symptoms of that malady.

[Dr. Todd does not agree with Dr. Hall, because he thinks that it is *not proved*, either that contraction of the platysma compresses the veins of the neck, or that there is any necessary connection between laryngismus and convulsions. He himself is of opinion that the anatomical disposition of the platysma unfits it for compressing the veins: and with respect to the laryngismus, he has found that on administering hydrocyanic acid, which developes a marked epileptic condition, to animals in which the trachea was previously opened, the convulsions were not prevented from taking place. Dr. Todd then proceeds to say:]

We may ask, is epilepsy due to an anæmic state of the brain,—to an imperfect supply of blood to that organ?

Although I cannot admit that epilepsy is commonly due to an anæmic state of the brain, still I must say that there are more facts in favour of this view than of the congestive theory, and that an imperfect supply of blood to the brain is very often associated with the epileptic condition.

I have already referred to cases in which epilepsy had supervened upon an anæmic state. These might be multiplied considerably, did time permit. What is particularly deserving of attention is the class of cases where convulsions ensue upon excessive uterine hemorrhage,—cases long recognised by the most experienced obstetrical physicians.

A cachectic state, in which the red particles of the blood are only

very imperfectly developed as to quantity, is very apt to accompany epilepsy. We see this frequently in hospital practice, in a very hard-working class of men—compositors in printing-offices, especially in those of newspapers. These men frequently work all night; and to support them in their toil, they addict themselves to the frequent use of spirits or other fermented liquors. General nutrition fails: the red particles are imperfectly regenerated, and the patient becomes epileptic.

Patients labouring under chronic disease of the kidney are much more apt to become epileptic, if they are pale, and if their blood is deficient in its red particles.

House-painters, or others exposed to the contamination of lead, are apt after some time to fall into a fearfully cachectic state, of which a principal feature is the deficiency in the red particles of the blood. I have seen several persons, under these circumstances, become epileptic shortly before death, and, in fact, die in consequence of the violence of the epileptic paroxysms.

All these are striking instances to show how blood deficient in quantity,—deficient in one of its most important staminal principles (the others, perhaps, not being quite normal),—and, perhaps, contaminated by the presence of some foreign noxious principle,—is favourable to the production of the epileptic state.

Experimental physiology supplies us with very striking facts to show that an insufficient supply of blood to the brain is very apt to occasion epileptic convulsions.

Every one who has witnessed the slaughter of sheep, which is effected by dividing the great arteries in the neck, must have observed the strong convulsions which so frequently precede death in animals killed in this way. All animals killed by loss of blood exhibit the same phenomena precisely, and die with convulsions of a more or less violent kind.

Dr. Seeds many years ago performed a series of experiments to observe the phenomena accompanying the deaths of animals by loss of blood. In all the cases convulsions preceded death.

In Sir Astley Cooper's experiments, by the application of ligatures to the carotid and vertebral arteries, the functions of the encephalon seemed more influenced by occlusion of the latter than of the former arteries. A considerable portion of the blood of the carotids is distributed to the external parts, to the membranes, to the parietes of the cranium; and those branches which supply the brain anastomose very freely with the vertebral arteries.

When the vertebral arteries were tied or otherwise obstructed, the carotids having been previously tied, very serious symptoms ensued: a state of insensibility was induced, which frequently was accompanied with convulsions, affecting the muscles of the eyeballs, as well as those of the extremities. In one experiment the carotids of a rabbit were tied, without any material effect. In five minutes the vertebral arteries were compressed by the thumbs, the trachea being completely excluded. Respiration stopped almost directly; *convulsive struggles* succeeded; the animal lost its conscious-

ness, and appeared dead. The pressure was removed, and it recovered, with a convulsive inspiration.

On a second compression of the vertebrals, similar phenomena ensued.

Three times more the compression of the vertebrals was repeated, with like result. On the fifth occasion, says Sir Astley, the result was the same—namely, suspended respiration, convulsions, loss of motion and consciousness.

These, surely, are symptoms very closely resembling those of epilepsy.

I come to this conclusion,—that while it is highly improbable that a state of congestion *per se* gives rise to the epileptic paroxysm, it is extremely probable that the opposite state, one of anæmia or of imperfect supply of blood, does frequently cause the complete epileptic fit, and that such a state is much more to be feared and guarded against by practitioners than the state of congestion, not only because its consequences are more serious and more persistent, but also because they are much less amenable to the remedies within their reach.

At the same time, this state of anæmia is not in itself the cause of epilepsy. We have too many instances of epileptics in whom no indication of an anæmic state exists, to allow the admission that the influence of anæmia operates in any other way than as one of the most potent disturbers of the nutrition of the brain; and we are therefore led to class it with other causes of disturbance which interfere with and derange the normal nutritive processes of the brain, giving rise to irregular actions of certain of its parts.

Having freely discussed the more obvious disturbances of the circulation in the brain which have been and are set down as productive of the epileptic state, it remains for me to develope a theory of epilepsy such as seems most in accordance with our knowledge of the physiology and of the pathology of the brain.

I would lay it down that epilepsy denotes a state of abnormal nutrition of the brain.

This abnormal nutrition shows itself in the unnatural development of the nervous force at particular times, in such a manner as to disturb the functions of the whole cerebro-spinal centre, but of the brain in particular.

These periodical evolutions of the nervous force which give rise to the complete epileptic paroxysm may be compared to the electrical phenomenon described by Faraday under the name of *disruptive discharge.*

We know that this phenomenon requires for its production, first, a highly-charged or polarized body, which, when it reaches a certain point of tension, may be made instantaneously, and with violence, to discharge its electricity to a conductor.

Thus the abnormal nutrient actions of the brain, in epilepsy, tend to produce a polar state of the particles of the hemispheres, of the tubercula quadrigemina, and of the mesocephale, which, when it reaches a certain tension, discharges itself, and induces with

great violence a rapid polarization of the neighbouring particles, involving in the general disturbance the medulla oblongata, the cerebellum, and the spinal cord.

In some instances the tension may be limited to the hemispheres of the brain,—then consciousness and intellectual action only are disturbed: either a comatose state is induced, which lasts for a certain time, or mania or delirium are produced. In such cases the state of tension may pass off slowly and gradually without any distinct discharge, and so the nervous matter may assume a state of equilibrium, without creating any serious disturbance of the other parts of the cerebro-spinal centre. In other cases the hemispheres and mesocephale pass quickly to the highest degree of tension, and a rapid discharge takes place, exciting the other parts of the brain and the spinal cord, with all the violence of the discharge from a highly charged Leyden jar, or the shock from the electrical organs of the torpedo or gymnotus.

The gradual and silent manner in which this state of tension is induced in the brain, and the absence of all appearances of mischief recognisable by our means of investigation in recent cases, the rapidity with which fit succeeds fit in the acute cases, leaving likewise no trace of organic mischief, denote that the peculiar state of the brain in epilepsy is brought on not by any change in the quantity of the blood, but by the accumulation of some material in the blood, which, acting on the brain as a poison, excites this polar state, and this disruptive discharge, and so escapes from the system, leaving the brain free from disturbance until a fresh accumulation excites a new paroxysm. The same comparison may be used here as I have already employed in speaking of other convulsive diseases. The nervous battery is excited by an abnormal fluid,—a fluid which causes it to develope the nervous force in irregular quantity,—a fluid, which when fully charged with its particular morbid element, excites a high degree of tension of the cerebral nervous matter, which can recover itself only by a discharge, which produces more or less serious disturbance of the neighbouring parts of the brain.

Under this view the infinite variety in the character and violence of the epileptic fits would be accounted for by variety in the quantity of the morbid material which contaminates the blood,—the poison which disturbs the normal actions of the brain,—by the different intensity with which it affects one part more than the other,—the comatose symptoms, being the more developed as the cerebral hemispheres are affected,—the convulsive symptoms, when the chief disturbance is in the mesocephale;—and, perhaps, also by difference in the quality,—the virulence—of morbid element.

This humoral doctrine of epilepsy is supported by a host of striking facts. The influence of certain poisons—as prussic acid and œnanthe crocata—in the production of artificial epilepsy, the exact counterpart of the disease as it affects the human subject, is one of the most important of these. Saillant, a writer in the memoirs of the French Royal Society of Medicine, (ann. 1782-83), concludes a

paper detailing some experiments on the artificial production of epilepsy, with these remarks, "We are content with concluding that it is easier to produce an artificial epileptic paroxysm through the blood than by irritation of the brain and nerves." Saillant's experiments consisted chiefly in injecting air into the veins.

A second class of facts, bearing most strongly on this view of the nature of epilepsy, is the frequent connexion between this disease and imperfect eliminatory action of the kidney, a connexion which I have no doubt ere many years we shall find to be very much more frequent than is even now suspected.

Nay, a temporary functional suppression or deficiency in the secretory action of the kidney, would allow the urea, and perhaps certain other elements of the urine, to accumulate in the blood to such an extent as to exert a poisonous influence on the brain, and to develope the epileptic paroxysm. The fact, first I believe brought to light by Dr. Lever, that the urine of women who have suffered from puerperal convulsions is sometimes albuminous, suggests that in some of the patients who suffer this form of epilepsy the disease may be referred to defective action of the kidney. This point, however, has yet to be worked out, and when physicians come more generally to look for the causes of morbid phenomena in something beyond mere excess or deficiency of blood, we shall probably obtain some satisfactory elucidation of it.

A third class of facts favourable to this view is derived from the diseases confessedly humoral, and the paroxysmal character which they are apt to assume. I would allude more particularly to the effects of the paludal poison, and to gout. Under the influence of the former, we have periodical paroxysms almost convulsive in their nature. A severe fit of ague in its cold stage is not far from an epileptic convulsion. The marsh poison, whatever be its dose, shows its effects in regular periodical paroxysms: the poison accumulating in conjunction with certain nutrient changes in the blood. reaches the quantity necessary to produce a paroxysm only at certain periods. The introduction of quinine checks this regenerating or cumulative power of the poison, and ultimately kills it. In gout we have an analogous tendency to the accumulation of the poison so as to occasion paroxysms. The regular development of the gouty paroxysm at the spring and fall of the year in some individuals, and its frequent occurrence at short intervals for a certain time, as once a month or once in two months, are phenomena analogous to the periodical development of the epileptic paroxysm.

Lastly, we have the very important fact, that certain animal poisons, as that of small-pox, measles, scarlet fever, or even the poison of typhus may, on their introduction into the system, produce epilepsy.

An interesting question which I have found it convenient to postpone until now, is as to the validity of that distinction which I admit is useful for practical purposes, into *centric* or *eccentric* epilepsy.

Under the theory which I have just enunciated, all epileptic

cases are strictly centric—that is, result from a cause acting directly upon the centre. But may not the cause originate at the periphery, and act upon the centre through incident nerves, affecting the brain through the spinal cord? To this question I think I must answer in the negative. Evidence is wanting to prove that the peripheral irritation of nerves is capable of exciting the epileptic paroxysm. You remember the remarkable conclusion of Saillant, which I quoted not long ago, "that it is easier to produce an artificial epileptic paroxysm through the blood, than by irritation of the brain and nerves." Then I may be asked, what becomes of the cases so generally admitted, in which epilepsy is caused by worms in the intestinal canal? in which, if you expel the worms, you cure the epilepsy. I am not prepared to deny the occasional association of worms and epilepsy, nor their connexion as cause and effect; but I would affirm that worms cause epilepsy not by direct irritation of the intestinal nerves, the spinal cord, and the brain, but by the disturbance of nutrition which they keep up. The mere presence of worms in the intestinal canal is an indication of deranged secretions there, and of a disturbance of its nutrition: worms do not flourish in a perfectly normal state of the intestinal canal. Therefore we may lay it down that there has been a disturbance of nutrition prior to the appearance of the worms, which is kept up and increased by the presence of the worms.

The terms *centric* and *excentric* are so far useful as directing attention to the *source* of the depraved nutrition of the brain; but epilepsy is always the result of such depraved nutrition, and it is highly improbable that it can ever be looked upon as produced by reflex action—that is, by a peripheral irritation propagated to a centre, and exciting great irritation there, involving spinal cord, and motor and sentient nerves.

[With respect to the *treatment* of epilepsy, Dr. Todd observes:]

In the general treatment of epilepsy, the practitioner must ever keep in view the three following objects: first, to remove sources of irritation, of disturbance of general nutrition, and consequently of contamination of the blood; secondly, by hygienic and moral means, to promote a healthy frame of body and mind; and, lastly, to find, if possible, some means of preventing the access of the fits, with a view to breaking the habit of their frequent periodical recurrence.

[In the fit, Dr. Todd thinks that no treatment should be adopted, beyond taking every precaution to preserve the patient from injury. As a means of *checking the access* of the paroxysm, he recommends the employment of anæsthetics, which he has often used with advantage. He says:]

The first case which presented itself was one of epilepsy, in which the fits were preceded and followed by mania. The patient was a young girl, aged 17: the fits were of frequent occurrence,—twice a week, and she was subject to them for seven years. Within the last year the fits were accompanied by the maniacal state. This

girl had been in a maniacal state for six days prior to her admission into the hospital: she was very violent, attempting to bite every one who came near her. She had even bitten herself.

In this case I administered ether on a sponge, holding it tightly over the mouth. The effect, to my great astonishment, and that of the bystanders, was instantaneous. Within a minute, noted by the watch, the patient fell off into a profound and placid sleep, which lasted eight minutes. She then awoke, and seemed disposed to be violent as before. It was necessary to administer the ether five times, after which prolonged sleep was produced. She slept well that night, and from this time became quite manageable and controllable: she continued for three or four weeks in the hospital, and although she had two or three fits there was no return of the maniacal state.

I have since had many opportunities of administering ether, and and subsequently chloroform, in cases of epilepsy. The cases which I have selected have been those in which, as in the case just related, the paroxysms have been accompanied by mania, or in which the paroxysms have been of frequent occurrence—daily, several times in a day, once or oftener in a week. In these cases I have administered chloroform daily, often twice, sometimes three times a day, and always producing the full effect. I have not met with any instance of untoward result in some twenty-five cases; and the general conclusion at which I have arrived is this, that the frequent administration of the chloroform does no harm to the brain, and that it undoubtedly diminishes the frequency of the fits, and exercises a very marked control over the maniacal state.

I have given it in cases in which there could be no doubt of the existence of organic disease within the cranium, either meningeal or cerebral, and with decided benefit. One old man, who had all the symptoms of diseased cerebral arteries, with, perhaps, some amount of white softening, and severe epileptic fits, was distinctly the better for the inhalations, and became more intelligent, and his fits less frequent.

In puerperal convulsions, chloroform may be administered with advantage. I know of several cases which occurred in the practice of others, in which the fit yielded to the influence of the chloroform. My friend Dr. Simpson, of Edinburgh, informs me that, among upwards of two hundred women whom he had delivered under chloroform, he has had no case of convulsions. In the epileptic convulsions of children also it may be used. Shortly after I began to use ether in epilepsy, my friend Mr. Ceeley, of Aylesbury, informed me that he had tried it with decided success in a case of infantile convulsions; and Dr. Simpson tells me that Dr. Robertson, president of the College of Physicians in Edinburgh, has administered chloroform in infantile convulsions with great success.

The administration of chloroform in epilepsy requires further clinical research. Upon this subject I am at present engaged, and hope, at some future period, to lay my results in a detailed form before my professional brethren. Perhaps some other anæsthetic

may be found better suited to epilepsy than chloroform. I am not without hope that some anti-epileptic agents—valerianic acid or valerianates—may be more efficaciously administered through the inhalation of chloroform than by the mouth. Mr. Savory, of Bond street, has sent me some specimens of valerianates held in solution by chloroform; but whether these substances will volatilise with the chloroform so as to admit of their introduction into the system in sufficient quantity, I have yet to learn.

I need scarcely remark, and yet I feel that I ought not to conclude the lecture without doing so, that chloroform must not be used without some careful precautions. One cardinal point is, that in its administration atmospheric air should be at the same time allowed to be freely inhaled: another point is, that the administrator should not be eager to obtain a rapid effect, although he should aim at obtaining a full effect; a third, that the recipient should always be placed, during the administration of the vapour, in the horizontal posture; and, lastly, the practitioner should abstain from administering it in feeble cases, where the heart is diseased or feeble, and the circulation languid or otherwise disturbed: and in all cases he should bear in mind that chloroform is a very depressing agent, and he should provide accordingly.

[Amongst specific remedies Dr. Todd refers to valerian and the valerianates; and also to the *cotyledon umbilicus*, which, he thinks, after the recommendation of Mr. Salter, ought to be extensively tried.]

Medical Gazette, May 11, 1849, *p.* 815, *and May* 18, *p* 837.

185.—*On the Use of Cotyledon Umbilicus in Epilepsy.*—By Dr. Joseph Bullar, Southampton.—[Dr. Bullar gives the following as the result of his experience in the use of this remedy, of which an account is given at p. 53 of this volume.]

Mrs. T., 33 years old, the mother of several children, and of a highly nervous temperament, had been epileptic for seven years. The fits had gradually increased in frequency and severity, so that during the twelve months preceding the use of the cotyledon, she had every three weeks an attack of eight or nine fits following each other for twelve or twenty-four hours. She has, with occasional intermissions, steadily taken the cotyledon since April 1848 (more than twelve months), and she has had only *one* fit (and that not a violent one) during the last seven months. Her general health and her nervous energy have improved, and she is unwilling to leave off the medicine.

The second case is that of an unmarried woman, about twenty-two years old, of a vigorous organization, and muscularly strong, whose general health, except slight leucorrhœa and habitual costiveness, was good. She had been epileptic since she was six years old, the fits returning once or twice a week, once a fortnight, and very rarely with so long an interval as three weeks. No remedies had been of the slightest use, and she had been under the care of

one of the best physicians in the South of England. Puberty worked no change for the better. She began taking the extract in April 1848, and continued it with few intervals until November. The fits were at first aggravated, then they gradually diminished in number and in violence until they were simply shorts fits of faintness, without loss of consciousness. In November she went with her parents to France, since which time (and six months have passed) she has had only two of these "fainty" fits, and is in excellent health.

In neither of these cases can the epilepsy be said to be cured (and they are the most satisfactory ones I have seen), but they are sufficiently encouraging to persevere in the remedy for a disease which at present very much baffles us.

In consequence of the difficulty of obtaining fresh leaves, I requested Mr. Randall, chemist. of Southampton, to prepare an extract from the juice: and I have been in the habit of prescribing five grains of this in the form of a pill, twice a day, and in some cases three times. Even in the most inveterate cases it has speedily diminished the violence and frequency of the epileptic fits, with improvement of the nervous power. The patients have slept more quietly, dreamed less; their spirits have improved, and their general health. In one the fits at first were increased in violence; and in two or three there has been for a short time increased nervousness, requiring temporary suspension of the medicine: but in all these cases there has been great subsequent improvement. But those patients and those practitioners who are not disposed to give the medicine a long, patient, and steady trial, will be disappointed. In five inveterate cases (of from fifty-eight to eight years' standing) I gave it for three months, and then discontinued it, for the fits still returned, although they were in all but one case fewer. From my subsequent experience as to the necessity of longer perseverance, I examined the details of these cases, and found sufficient evidence of remarkable diminution in the number of the fits in the three months' trial, when compared with the previous three months, to show, even in these almost hopeless instances, the virtue of the herb. A marked increase of the disease at first is probably a favourable sign, from showing some influence: increased nervousness should merely induce a temporary suspension; and if on the whole the intervals between the fits, and their violence are diminished, there are good grounds for perseverance. Possibly the length of the treatment may be diminished by increasing the dose. This is a point for further experiment, as, for obvious reasons, I have proceeded with a new remedy with caution.

Some of the patients to whom I have given it have had no very marked derangement of the general health; others have been of a highly nervous temperament; and others with a look of exhaustion both of body and mind. Such have required no other means, except attention to the bowels, which are often costive, by a simple

dinner pill. When, however, with an excitable nervous system (or without it), there is a yellow eye, foul tongue, turbid acid urine, fœtid and disordered secretions from the bowels on giving medicines, it is essential to purify the blood and fluids by a course of appropriate gentle aperients, which, acting like mineral waters, keep up a relaxed state of bowels without exhausting, and, together with strict attention to food, air, exercise, and habits, restore the general health,—a step usually necessary before any specific remedy will act satisfactorily. It is too well known that setting the general health to rights will not alone cure epilepsy, but no remedy can be available if this step is neglected.

In children, and especially boys whose general health is good, it is advisable to begin with a few brisk purgatives of calomel and scammony, followed by castor oil, to ascertain if the fits do not depend on worms. And in young men the state of the urethra should be inquired into, as an irritable urethra, attended with involuntary seminal discharges, may be one cause of the fits, and unless relieved by the use of the bougie, may render any other means abortive.

Medical Gazette, May 18, 1849, *p.* 858.

[Since the article at our 53rd page was printed, Mr. Salter has stated that he has got a fluid extract of the plant prepared by Mr. Hooper. Mr. S. says.]

I am informed by Mr. Hooper, that six pounds of the plant yielded two pints and a quarter of the fresh juice, and this was reduced by the process of inspissation to two ounces and six drachms. Now it will be found by calculation, that the dose of the fresh juice, which is one ounce—for I now give more than I did at first—is equalled by a little more than twenty-seven minims of this prepared extract. The doses may therefore be thus stated:—

Fresh juice, one ounce, or,

Hooper's inspissated juice, half a drachm, twice daily.

I avail myself of the present opportunity to state that this (May) is the best time to collect the plant, as it is shortly about to flower, and the juices are richest.

Medical Gazette, May 11, 1849, *p.* 832.

186.—*On the Pathology and Treatment of Tetanus, Trismus Nascentium, and Laryngismus Stridulus.*—By Dr. R. B. Todd, F.R.S.—[To prove that the spinal cord is the part of the nervous system affected in tetanus, Dr. Todd adduces the facts that tetanic symptoms, not to be distinguished from those of the real disease, are produced by the transmission of shocks from the magneto-electric machine through the spinal cord; and that strychnine, which can be shown to act upon the same part of the nervous centres, also produces similar symptoms. He then proceeds to say:]

The part of the nervous system affected is clearly the spinal cord, and at least the greater part of its intracranial continuation, the medulla oblongata; and it seems highly probable that the anterior horns of the gray matter of the spinal cord and the centres of implantation of the encephalic nerves, are more particularly affected.

And the nature of the morbid process is not one of inflammation, nor does it arise out of any alteration in the *quantity* of blood flowing through the cord; it is not due to any congestive state, nor to any anæmic state: it consists of an exaltation in the special property of the nervous matter; an exaltation in the generating power of that portion of the great nervous battery in which the chief cerebro-spinal nerves are implanted: in short, it is a state of exalted polarity of that centre, produced either by the extension of a similar polar state, developed at the distal extremity of some nerve, or by some modification of the nutrition of the cord caused by the development in the blood of a material having similar properties to that of the alkaloid, strychnia.

Or, in the language of physics, the exalted polar state of the battery is due either to an altered condition of its generating and conducting plates, or to an increased activity of the fluid by which they are excited—perhaps, indeed, to both.

Such, then, is the pathology of tetanus. A man receives a wound —this wound occasions an irritated, a polar state of certain nerves, —and this polar condition is communicated by a process of induction to the whole spinal cord, which, by some modification of the nutrition of the cord due to some altered state of blood, assumes that state the more readily, and retains it the longer.

Unless we admit that the blood has some share in the production of the phenomena, we shall fail in explaining the occurrence of tetanus without injury, or the tetanus of infants, but more especially we shall fail in explaining its greater proneness to be developed in certain localities, or in certain states of atmosphere and climate.

And surely the fact to which I have already adverted, of the much greater facility of inducing this polar state of the spinal cord by the introduction of certain substances into the blood even in almost infinitesimal quantity, than by mere mechanical irritation of the nerves, strongly points to and favours the conclusion, that a change in the natural condition of the blood may greatly promote, if not wholly cause, the development of the tetanic state; and this change in the blood may be caused either by the introduction into it of some new material from without, or by the generation within it of some new matter possessing highly poisonous qualities.

All that I have said respecting the clinical history of the trismus nascentium, and of laryngismus stridulus, shows that these diseases must be precisely similar to tetanus in the essential points of their pathology.

The trismus, indeed, is only a very acute form of tetanus, and its endemic character, and its proneness to occur under circumstances unfavourable to free ventilation, and good general nutri-

tion, are highly confirmatory of the view I have ventured to advocate of the probable influence of a morbid state of blood in promoting the polar state of the spinal cord and medulla oblongata.

Laryngismus differs from tetanus in the fact that the polar state of the nervous centre is less permanent, and that the medulla oblongata is more affected than the spinal cord. In tetanus, the spinal cord is more affected than the medulla oblongata. The proximity of the medulla oblongata to the centre of emotions, explains the extreme excitability of children suffering from laryngismus by mental emotions.

In laryngismus, there is nothing whatever of an inflammatory nature, nor is there anything of a congestive kind: it is most important that practitioners should be well impressed with this fact.

Whatever congestion may arise in the nervous centres is venous, and is caused by the convulsive paroxysms, which impede respiration, and consequently delay the return of the venous blood. It is, then, an effect and not a cause of the convulsive state.

We have in laryngismus only an exalted polarity of the nervous centres, caused either by peripheral irritation, as that of dentition, or by a morbid blood produced by imperfect feeding, artificial nursing, bad air, neglect of cleanliness, or associated with a highly scrofulous diathesis.

These views of the peculiar condition of the spinal cord in tetanus and the allied affections were, so far as I know, first put forward by Dr. Marshall Hall, to whom science is under great obligation for the introduction of sounder views on many points in the application of physiology to pathology. That distinguished physiologist, with whom I regret to find myself at variance on many points, in an interesting and valuable essay on convulsive affections, makes these remarks:—"Tetanus and hydrophobia consist in an induced spinal erethismus, the paroxysms consisting of augmented or excited spasm, from external excitants. The infant, under the influence of what I will designate the convulsive tendency, susceptibility, or erethismus, may therefore be compared to the patient attacked by tetanus. The causes are similar—irritated nerve, inducing spinal erethismus, and great susceptibility to excited reflex actions; the effects are analogous—tetanoid affections."

[Dr. Todd thinks that the ill-success of our treatment of tetanus is partly due to forgetfulness of the fact that death takes place from exhaustion consequent on the frequent renewal of the tetanic paroxysms. He says:]

The pathology and clinical history of tetanus point out three objects which the practitioner ought constantly to keep in view in the treatment of it.

1. To support the strength of the patient as much as possible, so as to oppose the exhausting effect of the convulsive paroxysms.

2. To remove all possible sources of irritation or of depravation of the blood, in vitiated secretions, bad diet, impure air.

3. To diminish and reduce the exalted polarity of the nervous centres to their normal condition, and if possible, to effect this by means which will not exhaust or reduce the powers of the patient.

Now, the first indication is of primary importance: if the patient can be duly supported, we gain time, and we have abundant proof that the natural powers of the system are often capable of doing the rest without any assistance from art.

To accomplish this object, the practitioner should set himself diligently to devise means of giving nutriment and stimulants in the manner in which they may be most readily assimilated. As a general rule, this may be done best by giving them frequently, and in small quantities; and it is wonderful how much may be taken in this way if they are only administered with care and judgment.

Any process of depletion—by loss of blood, or by evacuants of any kind, carried to a great extent, would be highly objectionable, as being calculated to oppose the object in view.

In addition, then, to the various articles of food best adapted to the assimilating powers of the patient, and also to wine, or other alcoholic stimulants, the practitioner ought not to withhold the liberal use of quinine, ammonia, iron, or other drugs, which experience tells us exercise a tonic power over the system in general,—and he may give them in large doses.

The second point may be best attained by means calculated to promote the various natural secretions, especially those of the bowels, skin, and kidneys. But in administering remedies for these objects, care should be taken not use those of a violent and irritating nature: drastic purgatives should be avoided; too profuse sweating or diuresis should be guarded against; and the practitioner should bear in mind that the object is to alter and improve, not to pull down.

To obtain the third object—namely, to reduce the polarity of the spinal cord, is at once the most important and most difficult. The various sedative remedies—opium, hydrocyanic acid, belladonna, conium, tobacco—have been fairly tried and failed. Opium is not a sedative to the spinal cord; its use in tetanus may be laid aside excepting in small doses as a sudorific. In cold-blooded animals it exalts the power of the spinal cord, and it is not impossible that in warm-blooded animals it may have a similar tendency: it is, therefore, a remedy of little value in tetanus, save as a sudorific, and in large doses it may be of an injurious tendency.

Neither is hydrocyanic acid a sedative to the spinal cord; on the contrary, it tends to produce epilepsy, and to excite the polar state of the cord by induction from the brain.

Belladonna has a decidedly sedative influence, but it disturbs the action of the brain so much, that it is not a safe or manageable remedy. The same may be said of conium. Tobacco undoubtedly reduces the polar state of the cord, but it produces at the same time a state of fearful depression. It is likewise an unsafe and not a manageable remedy. I have seen more than one patient die, *cured* of tetanus, under this remedy.

There are two agents which certainly exert a considerable power over the polarity of the spinal cord, which have not yet been tried sufficiently fairly, and which I think fully deserve to be put extensively to the test of experience. These are—cold and chloroform.

Of cold, I can speak favourably from my own experience; I have tried it by the application of ice in ox gullets to the spine, taking care to renew them frequently. I have adopted this practice in tetanus, and in convulsions in which the spinal cord was much involved, and in other more partial states of exalted polarity of the spinal cord, and with a sufficient amount of success to justify me in forming a very favourable opinion of the powers of cold as a depolarizing agent.

In order to give the remedy a fair trial, great vigilance is required on the part of the attendants of the patient to renew the bladders very frequently, otherwise they become elevated to the temperature of the body. This should never be permitted, as it is only by the long-continued application of cold that the spinal cord can be reached by it.

Another point which the practitioner who uses cold in this way must keep in view is, that when the cold fairly reaches the cord, its influence is shown by a marked depression of the action of the heart, which leads to general depression and debility. During the application of the bladders in this way, increased vigilance will be necessary in the administration frequently, and at short intervals, of nutritious and stimulant substances.

Sometimes the depression of the heart's action reaches a point below which it would be unsafe to suffer it to go. Under these circumstances the ice must be removed, and kept off until the heart in some degree recovers itself, when it may be resumed. Thus by removing and reapplying the bladders from time to time, the influence of cold may be kept up sufficiently long to produce a favourable effect upon the cord without producing such an amount of depression as may operate to the disadvantage of the patient. But to carry out this plan great vigilance, and care, and judgment, will be needed on the part of the practitioner, in order that all precautions may be duly observed, and that the patient may be encouraged to persevere in the use of a remedy which involves some degree of personal discomfort.

Of chloroform, in tetanus or tetanoid affections, I have no experience. Two years ago, however, I performed some experiments, by which I satisfied myself that the analogous agent, ether, when introduced into the system by inhalation, exercised a most powerful controlling influence over the polar state of the cord, as induced by strychnine.

In these experiments, I found that previous etherization retarded the polarising influence of the strychnine; and that, after poisoning by strychnine, life might be prolonged for a considerable time by the administration of ether.

A guinea-pig was thrown into tetanus by a quarter of a grain of strychnine; immediately the tetanic symptoms showed themselves,

he was etherized; the state of tetanus immediately passed off, in a short time, however, it recurred, and was again controlled by ether; and by thus repeatedly etherizing the animal when the tetanic symptoms reappeared, life was prolonged for many hours, whereas another animal of the same size, and poisoned at the same time by the same dose, but not etherized, died rapidly.

These experiments illustrated in a very striking manner the antagonistic power which ether (and chloroform as possessing identical virtues) can exert over the polarity of the cord. The great point which ought to engage the attention of practitioners in the application of these agents to the treatment of such cases as tetanus, is to know how to avail themselves of its depolarizing power, and at the same time to guard against the injurious effects of its depressing influence. Chloroform weakens the force of the heart,—sometimes diminishing, at other times increasing the frequency of its action. Hence, while administering it in tetanus, we shall find it necessary to use with increased diligence the means calculated to uphold our patient's strength; and we must take care that the sleep of chloroform does not prove to him the sleep of death, by depriving him too long of those supplies which alone can counteract the destructive asthenia.

In the absence of any experience of the use of chloroform in tetanus, I should advise that a patient be not kept under its influence for any length of time, and that if, after the administration of it, and after its more profound effects have passed away, he should continue to sleep, the sleep should be interrupted at intervals of an hour or of half an hour, according to his strength, in order to administer support. If the patient does not sleep after the administration of the chloroform, and if the effects pass off, then it should be administered a second time, and a third time; after which several hours should elapse before it is again administered, and then it should be given in a similar manner, taking care that it be given not more frequently than at three, or at most, four different periods in twenty-four hours.

These suggestions, however, are prior to experience; they want the support or the modification which observation only can give, and I should not venture to offer them were it not that it seems to me of great importance that we should not discard an agent so powerful as chloroform, against certain morbid states, without giving it fair play, sifting its merits and demerits, and employing it in various ways, so as, if possible, to secure the benefit of the former, and to guard against the disadvantages of the latter. In some cases of tetanus in which I have heard of chloroform being employed, it has seemed to me that the patient was kept too long under it at once, - that its renewal was at too short intervals,—and that sufficient precautions were not taken to counteract its depressing influence.

[Dr. Todd observes, with regard to *trismus nascentium*, that its rapid course does not allow much time for treatment. The plan which he recommends us to adopt, is that of frequent and copious

affusion of cold water, especially over the back; care being taken quickly to rub the child dry, and to wrap it in warm blankets after each affusion. At the same time attention must be paid to good feeding, and to the state of the bowels: and to the ventilation and temperature of the apartment. The indications of treatment, *in laryngismus*, Dr. Todd observes, are three: 1st, to remove all sources of irritation,—by giving purgatives to carry off accumulations or morbid secretions in the bowels,—and by lancing the gums freely *when they are swollen and inflamed, but not otherwise.* 2nd, to promote healthy nutrition, by attention to the quality of the food, and by taking care that the child is fed slowly, and that it is not allowed to fast too long. 3rd, to diminish the excitability of the nervous system. Upon this subject Dr. Todd says:]

The plan of dashing cold water in the face, to avert an impending paroxysm, or to shorten an existing one, is generally attended with success, as regards the paroxysm. It is also, I think, useful in shortening the intervals between them, by diminishing the excitability of the cutaneous nerves. This dashing with cold water should be administered liberally and rapidly, notwithstanding the concomitant inconvenience of wetting the child's clothes. In some instances the operation of drying the child and putting on fresh clothes is itself useful. On similar principles, I find it very useful to have the child well sluiced with cold water night and morning, and sometimes even a third time in the day. A large quantity of cold water should be dashed *rapidly* upon the back and shoulders, and along the spine,—a moderate pitcher of water being *at once* emptied upon them. The value of the remedy is greatly enhanced by the suddenness of its application. In this suddenness consists the skill of its administration: and unless this be well done, it had better not be used. For this reason it is expedient that the practitioner should at first superintend its administration himself, and teach the nurse how to apply it.

The cold affusion not only diminishes the excitability of the cutaneous nerves, it likewise improves general vigour, stimulates the circulation of the skin, and consequently increases the action of that great emunctory, and contributes to promote a more healthy state of general nutrition.

If drugs are used, the most valuable (in addition to such purgatives as may be necessary to keep up a moderate action of the bowels) will be found to be those of the tonic and antispasmodic class. I have myself seen most advantage from the use of iron in combination with alkalies, potash, or ammonia. Assafœtida is extolled by some. Sir H. Marsh commends the old tinctura fuliginis. The infusion of bark, the liquor cinchonæ of Battley, the tincture of bark, quinine itself (the chief objection to which is its intense bitterness of taste) will all prove more or less useful.

Depletion by bloodletting, whether general or local, may, I think, be completely discarded from the list of appliances at the command of the practitioner in the treatment of this malady. In most

instances it may do great harm by impoverishing the blood, and increasing the excitability of the nerves, and weakening the patient. I have not met any cases in which it has appeared to be advisable, unless as a means of satisfying the prejudices of parents or others. The disease is clearly not inflammatory; all who have seen it on a large scale agree in this view: and whatever congestion may arise in the nervous centres is the result of the paroxysms, and not their cause. Some may think it advisable to use depletion for the relief of this congestion. Upon this point it is obviously impossible to lay down any general rule. In my own experience I have not met with any instance of congestion of this kind which has not been sufficiently easily relieved by purgatives and attention to diet.

Of all the remedies which are adapted to increase the tone and vigour of the nervous system, none is so potent as the exposure of the child to fresh air, especially to that of a locality different from that in which it had been accustomed to live. There are few who cannot bear testimony to the efficacy of this practice. In principle it should be carried out throughout the whole treatment of the case. The child should be kept if possible in an airy, well-ventilated apartment, of moderate temperature. Every thing like what is commonly called "coddling" should be avoided. The child should be lightly *but sufficiently* clad, and be kept free from all such articles of clothing as might in any way impede the superficial venous circulation, or interfere with the free action of the respiratory muscles. If complete change of air cannot be obtained, it is a good plan to take the child out daily in a carriage into the country, to some distance from its usual residence, where, if the weather be not too cold, it may be carried about in the open air.

Many practitioners have a fear of adopting the change of air system, lest the patient should incur the risk of bronchitis. This fear is, within certain limits, well founded. But I think it right to mention here, what I have not seen referred to elsewhere, namely, that one of these patients may have the physical signs of bronchitis without the disease. A spasmodic state of the bronchial muscles frequently coexists with the spasm of the glottis, often precedes it, and remains for a considerable time after it. This is accompanied by a generally diffused *rhonchus*, such as would occur in bronchitis. It subsides immediately the general state of spasm subsides. Of these points I have had frequent opportunity of satisfying myself.

Children often fall into what I would call a *laryngismoid* state, *i. e.*, a condition in which the tendency to laryngismus is manifest, with great nervous excitability. If the child cough, inspiration is attended with a croupy noise. Crying, or any forced respiratory act, exhibits similar phenomena. But no regular convulsive paroxysm occurs. In these cases great benefit is derived from daily exposure to the air, and from a treatment conducted upon the same plan as for the fully developed malady.

Medical Gazette, May 4, 1849, *p.* 766.

187.—*Case of Croup Treated by the Application of Nitrate of Silver.*—By Dr. JAMES BRYAN.—[This case affords additional evidence of the utility of applying nitrate of silver to the larynx in cases of croup, as recommended by Dr. Blakeman and others, at page 128 of our sixteenth volume. Dr. Bryan says:]

On the 21st of April of the present year, I was called upon by my friend Dr. T. Beasly, to see with him the only child of Thomas Hutchinson, aged fourteen months, labouring under an attack of croup. From the conviction that it was a pure case of pseudo-membranous croup, little hope was expressed by Dr. B, that the child would recover. At 7 o'clock p.m., the first application was made into the larynx, with a solution of forty grains of nitrate of silver to the ounce of water. The bent handle of a silver spoon served as a spatula to depress and draw the tongue forward. The epiglottis was distinctly seen, and the sponge cut in a conical form, and firmly fastened to a properly curved piece of whalebone, was rapidly passed behind it, and into the larynx. A temporary spasm of the glottis followed, and a free discharge of membranous and mucous fluid took place. This was succeeded by an improvement in respiration. The pulse was one hundred and thirty per minute, and thready.

9½ P.M.—Respiration had improved somewhat; a free discharge of mucus by vomiting had taken place since the first application. The second application was followed by a copious flow of flaky and stringy mucus, white almost as milk; some blood from the nose was mixed with the discharge; epistaxis, however, has existed now and then, ever since the disease began.

22nd. 8½ A.M.—The child has passed a tolerably easy night, free bilious evacuations from the bowels, the effect of two grains of calomel administered every two hours since yesterday morning. Respiration now easy; the head is not thrown back as before; the child is in a quiet sleep; pulse ninety-five and regular; drinks cold water freely since the first application of the nitrate.

Third application, sixty grains to the ounce, into the larynx, followed by less spasm, very little irritation, and by free expectoration. Continue calomel two grains every four hours.

7 P.M.—Three or four stools have been passed during the day. The child lies languidly on the pillow, with its chin raised, but quiet. The respiration dry and difficult. The first attempt at an application this evening failed, on account of the restlessness of the child, and the spasm which followed was great, and continued for several minutes. In the second attempt, I succeeded in passing the instrument far down into the larynx, and brought up with it a quantity of tenacious mucus. The withdrawal of the instrument was followed immediately by the discharge of a large quantity of thick membranous, tenacious, stringy mucus, somewhat streaked and yellowish, which resulted in the complete relief of the child, who laid back his head and went to sleep in a few seconds.

23rd. 8½ A.M.—The respiration of our patient is comparatively easy; slept well last night: has had four bilious stools. He is so

much relieved, that we resolve not to apply the salt at present, but to hold ourselves in readiness to make the application, should it be demanded during the day.

7 o'clock P.M.—The child is sitting on his mother's lap, playing with his toys. Respiration slightly stridulous; has taken bread and milk; had three stools during the day, and has slept comfortably. The throat as far as can be seen, is free from the diptheritic deposit, which at the first and second visits had been very evident, covering the fauces and soft palate with a milk coloured membrane. Made no application this time, but directed to continue calomel one-half grain every four hours, with one grain of quinine in syrup.

24th.—We met again at 9¼ o'clock A.M., and found the child lying comparatively easy in the cradle; but little sound in the respiration, which was but slightly impeded; had passed a comfortable night, slept well, taken nourishment, and passed three stools; no application; calomel to be continued; consultation to cease. Dr. Beasly informs me that the child got perfectly well, without a bad symptom, and that he thinks that the application was the means of saving its life.

It will be seen that none of the usual remedies, such as bleeding, emetics, cathartics, tobacco, &c. &c., with the exception of a few grains of calomel, were used in this case.—*Phil. Med. Exam.*

British Record, Dec. 1, 1848, *p.* 378.

188.—*Case of Abscess of the Kidney, following Scarlatina.*—By Dr. J. R. Cormack, F.R.S.E.—[After stating that purulent collections are not very unfrequently to be found in the kidney in fatal cases of small-pox, typhoid fever, pneumonia, &c., and remarking that it is singular that the same state should not have been found after scarlatina, Dr. Cormack proceeds to say:]

It is beyond all doubt, that in a large number, if not in most cases of scarlatina, there is—during the eruptive fever occasionally, but more often during desquamation—bloody urine, scanty urine, or suppression of urine; and that in these cases the urine is albuminous, and the patients affected with dropsy, and often with alarming coma or convulsions. When such cases terminate abruptly in death, we commonly find simply hyperæmia of the kidneys, and a choking up of the tubes with epithelium; but if they prove fatal after a more prolonged period, that condition is found which is described as characteristic of advanced nephritis, and which has been so elaborately described by Rayer and other authors in connexion with scarlatina and albuminous urine. That this affection of the kidney should be so common is not at all surprising, when we remember the frequency of acute desquamative nephritis in connexion with scarlatina, and look through the microscope at the urine passed by the patients, and find it loaded with epithelium, and even with complete casts of the tubes, indicating the activity of the desquamation from the internal coat of the tubuli uriniferi. When this desquamation is excessive, it is easy to see how these small

passages must become choked up with epithelium—and congestion, causing suppression of urine, and ultimately dangerous inflammation—be induced: but it still remains to be explained how it is that such changes should so rarely terminate in suppuration. Rayer, in the second volume of his Traité des Maladies des Reins, p. 428, discusses very fully the subject of albuminous nephritis succeeding scarlatina, and gives most copious references to all the recent writers on the subject; yet in no part of his elaborate chapter does he mention pus having been found in the urine during life, or in the kidneys after death, in scarlatinous renal disease: and in volume third, in his article on "Pyelitis," no reference is made to that disease occurring in conjunction with, or as a sequence to, scarlatina. I have made pretty extensive inquiries among many friends well acquainted with pathological anatomy, and from all of them have received the same answer, that they had neither seen nor read of scarlatinous renal nephritis terminating in abscess: nor has any one, except Dr. Bevill Peacock, informed me of having seen pus in the kidneys after scarlatina. That gentleman, however, states that he has seen diffuse suppuration of the kidney. In a note with which he favoured me, of date 23rd of January, 1849, in reply to my inquiries, he says, "I do not know of any published cases of abscess of the kidney—true abscess, I mean, connected with scarlatina. I have never seen any thing of the kind, though I have found diffuse suppuration in such cases."

[Dr. Cormack then relates the case of a boy aged between seven and eight years, who suffered from scarlatinous nephritis, and died on the fiftieth day. After death, a cavity, the size of a hazel nut, and containing pus, was found in the left kidney, and both kidneys presented the characteristic appearances of albuminous nephritis. Dr. Cormack makes the following, amongst other, observations on the case:]

The cortical substance, so pallid and devoid of blood-vessels on dissection, was greatly altered by long-continued disease. Congestion had, long before death, passed into active inflammation. There had been inflammatory granular exudations into, and around, the tubes, excited by the pressure of the gorged veins: the veins also had become inflamed; and both had subsequently become atrophied, by the contraction of the cacoplastic lymph which had been effused. The albuminous condition of the urine, and other symptoms originally caused by mere congestion, were kept up by this state passing into inflammation, and thus rendering permanent that which was at first, as regarded the veins, mere obstruction from congestion with blood, and as regarded the tubuli, obstruction from pressure on their walls by the enlarged veins, and internal choking with epithelium. In granular disease of the kidney, that treatment which relieves renal congestion palliates the symptoms and diminishes the amount of albuminuria; and the sudden but brief amendment, with diminished albuminuria, which occurred in the case of my patient on the 30th December, must be ascribed to

the bursting of the abscess having relieved the surrounding congestion, previously excited and kept up by its pressure.

It is to be regretted, that albuminous urine is still so much spoken of as specially diagnostic of renal *disease*, as it leads to errors in practice. The opinion of Dr. C. J. B. Williams is undoubtedly correct,—that, *per se*, albuminuria indicates nothing more than *congested* kidney. The facts already stated establish the correctness of this view.

In the treatment of patients emerging from scarlet fever, and even of those in an advanced stage of convalescence, or apparently quite recovered, it is most important to remember, that, from remaining debility, or, more generally, from this cause in conjunction with obstruction of the tubes from excessive desquamation, slight chills are apt to cause hyperæmia of the kidneys, which, when neglected, may originate a formidable, and even fatal, train of symptoms. Diuretics are seldom safe in such cases: though sometimes spiritus ætheris nitrici may be given. Besides the remedial means already referred to, it is important to order as adjuvants, (or as prophylactics), the clothing of the entire body in flannel, the use of mild but nutritious diet, and the scrupulous avoidance of exposure to chills, to wet, or to currents of cold air, not only until desquamation from the skin and tubuli uriniferi have ceased, but till the patient has regained his wonted tone. Scrofulous children recovering from scarlatina, require special watching; for even when they have had the disease so mildly as to be scarcely perceived, they seldom escape without dropsy of more or less intensity. There is a great proneness to renal congestion in scrofulous children, even when little out of their usual degree of health; this is evidenced by the frequency of albuminuria in them. I have repeatedly found the urine albuminous in the febrile attacks of strumous children; and in a case of tabes mesenterica, with dropsy, which I lately cured, (by steady mild purging, cod-liver oil, and syrup of the iodide of iron), the urine at the commencement of the treatment was intensely coagulable by heat and nitric acid. In the diseases of children of scrofulous taint, (especially when the skin is harsh and scaly), the urine ought always to be tested for albumen; and, in a large number of cases, it will be found to contain it, but will often cease to do so, on the exhibition of a smart purgative. Dangerous cerebral diseases may thus be very often averted.

London Journal of Medicine, May, 1849, p. 451.

189.—ON THE DYSENTERY LATELY EPIDEMIC IN DUBLIN.

By Dr. R Mayne, Physician to the South Dublin Union Workhouse.

[This epidemic appeared in two forms. In one, which Dr. Mayne terms the *acute* variety, the disease, though if neglected or mismanaged it became chronic or terminated fatally, yet, at the first, yielded readily to active treatment: while the second variety, which

he terms *chronic*, was from the first complicated and unmanageable, and generally ended in death. In the present paper Dr. Mayne treats only of the *acute* dysentery. Speaking of *its pathology*, he says,]

In all the *post mortem* examinations of those who died within three weeks from the commencement of the disorder, the large intestine was found the principal seat of the organic mischief, and in the majority of such cases it was the only part engaged. The morbid appearances generally extended from one end to the other of this portion of the intestinal tract; but it may be stated as a general rule, to which I do not recollect a single exception, that the lower parts of the canal were those most intensely affected, and that the structural changes became gradually less and less apparent as they were traced upwards towards the cæcum. An undue degree of vascularity of the peritonæum covering the diseased portions of the canal was generally observed, and the absorbent glands along the large intestine usually attracted attention from their extreme congestion; these bodies, which are of a pale colour and insignificant size when healthy, were, in almost every instance, enlarged, and of a dark claret hue. The walls of the diseased intestine were always enormously thickened and indurated; grasped between the fingers the part felt semi-cartilaginous, and to the scissors it offered an undue degree of resistance, cutting like brawn. The cavity of the intestine was found almost invariably contracted. In no instance were scybala present, and rarely were any traces of true fæces discovered, the contents of the lower bowels being similar to the matters last evacuated during life.

The mucous coat presented the most remarkable alterations in structure; in colour it exhibited every variety of shade, from the most intense vermilion to dark green and purple; in the rectum the green or purple hue of gangrene often predominated, but in the upper portions of the colon and in the cæcum a more florid vascularity for the most part prevailed.

In certain cases, which had run a very rapid course, the entire free surface of the mucous membrane, from the cæcum to the anus, was covered with a thick branny exudation, of an olive or dark brown colour, and presenting a striking resemblance to the cutaneous disease icthyosis, or the material called shagreen; by scraping this with the blade of a scalpel it was easy to detach it from the subjacent membrane, which then appeared red, tender, and superficially ulcerated.

In other instances, where the disease proved less rapidly fatal, the mucous membrane exhibited various forms of ulceration; sometimes the ulcers were solitary, with indurated bases and elevated irregular margins, not unlike the Hunterian chancre; these were always most numerous in the rectum and sigmoid flexure of the colon, and became fewer and fewer as the cæcum was approached; sometimes the mucous membrane over a great extent of surface appeared raw and velvety, with varying shades of vascularity, and, on close examination, it was found superficially ulcerated;

whilst in a third variety the ulcers were large, irregular, ragged, and had deeply eroded the walls of the gut. In a vast number of cases these ulcers had penetrated fairly to the serous coat, but in no instance did perforation actually occur.

In the acute dysentery the small intestine was usually found healthy, the ileo-cæcal valve forming a line of demarcation to the disease; but in a few instances the ileum and the jejunum were both implicated, the mucous membrane of those intestines being excessively congested, although never actually ulcerated. Here also, just as in the large intestine, the disease seemed to decrease gradually from below upwards.

The liver was sometimes extremely congested, and poured out dark venous blood in excessive quantities when incised; but this condition of the liver was certainly not essential to the disease, for it was very frequently absent. The gall-bladder was always moderately distended with thin orange-coloured bile. The spleen and pancreas, the thoracic viscera, and the brain, were ordinarily healthy.

It is unnecessary to detail the symptoms of acute dysentery as they are too well known to require more than a passing notice, and during the late epidemic they presented nothing peculiar.

Fever was always present, but it resembled the constitutional disturbance produced by a severe local disease, rather than any of the ordinary forms of continued fever. The disease, in almost every instance, commenced by a bowel attack, *not preceded* by fever, and the pyrexial symptoms which followed increased or diminished in proportion to the success or the failure of the remedies exhibited to subdue the local inflammation; in a word, the accompanying fever appeared to be the constitutional expression of local suffering, and not the more complex derangement of the system entitled continued fever.

In making this statement I do not mean to assert that during the recent visitations dysentery and typhus never co existed; in a certain number of cases dysentery occurred as a sequela of fever, and in a few it seemed to arise during the progress of fever; but there was no necessary connexion between the two diseases, and when they happened to attack the same individual, the complication appeared to be purely accidental.

The dejections presented very different appearances in different cases: in some they consisted almost exclusively of shreddy mucus intermixed with blood, and without a trace of fæcal matters; in others the sanguineous discharge seemed to predominate, large quantities of fluid blood passing in every stool; in a third class of patients a tremulous, gelatinous-looking substance, ropy, tenacious, and tinged with blood, formed the greater part of the evacuations, and, like the secretion from the bladder in chronic cystitis, it also frequently adhered to the bottom of the vessel; in a fourth, a greenish semi-fluid material, like spinach, appeared the principal ingredient; whilst in a very large proportion the stools, from the very commencement, exhibited neither blood, lymph, nor mucus,

but assumed at once the ochry appearance so common in chronic dysentery.

The treatment which proved most successful may be summed up in a few words: dissection showed that the disease consisted essentially in a severe inflammation of the large intestine, tending rapidly to ulceration, and sometimes even producing the death of the structures implicated; and, true to its pathology, it usually yielded to mercury and other antiphlogistic measures, *when this line of treatment was employed sufficiently early.*

Venesection was practised with the best results whenever the patient was young and vigorous, and came under treatment in good time; but in a vast majority of the workhouse cases *local* detraction of blood was the only mode of depletion practicable: this was best effected by leeching the verge of the anus repeatedly, greater relief being obtained from twelve leeches so applied than from triple the number placed upon the abdomen; the hemorrhoidal veins were in this manner most effectually unloaded, and at the same time the distressing tormina and tenesmus were with great certainty mitigated.

Mercury, however, must be considered the principal remedy. At this conclusion both my colleague, Mr. Shannon, and myself, had arrived early in the epidemic, and in it we were confirmed by the subsequent experience of the assistant physicians, Dr. Kennedy and Dr. Richardson.

As in other acute inflammations, the good effects of the mercurial treatment are sometimes first perceived simultaneously with its action upon the the gums, but very constantly it produces a cure before any symptoms of salivation arise; so that a daily inspection of the evacuations alone enables the physician to determine when the remedy ought to be discontinued.

The beneficial influence of the mercury is first recognized by the appearance of true fæcal matter in quantity in the stools, accompanied by marked relief to the general uneasiness, and a decided decrease of the dysenteric discharges. As soon as the natural secretions are fairly restored, the mercurial treatment may be safely laid aside, irrespective of the condition of the mouth.

Next to mercury, alkaline medicines appeared to exert the most beneficial influence in acute dysentery. Unaided by mercury, their power to control the disease is but feeble, nor ought they ever to be depended upon, as a substitute for mercury, when the complaint is recent and the patient's constitution healthy; but when the evacuations have assumed a healthy colour, under the influence of mercury, the stools still continuing too frequent and too fluid; or when mercury has fairly affected the mouth, without improving the stools, or materially alleviating the distress; or when the constitution is too feeble, or the dysentery too chronic, to afford a reasonable expectation of success from the employment of mercury, the most remarkable benefit is sometimes obtained from this class of remedies.

[Astringents were found only to aggravate the disease; so likewise did full doses of opium. Smaller doses of opium, especially in the form of Dover's powder combined with the mercury, seemed to relieve pain without exercising any injurious influence. When the active symptoms had subsided, there was often a tendency to scybalous stools: under these circumstances the most effectual remedy was a draught containing one drachm of castor oil with twenty drops of oil of turpentine, given every three or four hours till the bowels were unloaded. With these were also combined astringent injections containing acetate of lead. When a relapse occurred, oil of turpentine was the most powerful remedy.]

Dublin Quarterly Journal, May 1849, *p.* 297.

190.—*Case of Severe Chronic Sciatica cured by the Actual Cautery.* —By M. Robert.—A woman from the country, aged 50 years, of good constitution and naturally portly, had been tortured during the last fifteen months with severe sciatic pains in the right limbs as low down as the foot. These pains were so insupportable each night, that she was obliged to get up and walk about the room. During the day her sufferings abated a little. Various remedies had been used without success, especially blisters frequently repeated. On examination no change could be detected in the normal physical condition of the limb; the patient had become thin in consequence of the sleepless nights she had passed. M. Robert had her put under the influence of chloroform, and with a red hot iron made a good stripe along the outer part of the dorsal aspect of the foot, precisely in the direction of a line drawn from the external malleolus to the third and fourth toes. As soon as the patient came to herself she declared that the pain had completely left her. The following night she was perfectly calm and able to sleep for the first time; the pain has not returned at all since, and were it not for the suppurating wound upon the foot she might quit the hospital in a few days.

To-day, (fifteen days since the operation,) the cure of the sciatica has undergone no alteration, and she complains only of a slight smarting in the artificial wound. She will soon be able to leave the hospital, perfectly cured. This case ought to be added to the number of other parallel cases which we have previously reported as occurring in the practice of M. Robert. The treatment was first adopted by an Italian surgeon, Petrini, who practised for many years at Naples under the name of Cotugno, and being of great efficacy, is deserving the attention of practitioners.—*Annales de Thérapeutique*, Mars.

Provincial Medical and Surgical Journal, May 16, 1849, *p.* 276.

191.—*Case of Obstinate Neuralgia.* By — Wing, Esq.—[At a recent meeting of the Westminster Medical Society, Mr. Wing related the case of a gentleman æt. 42, of literary pursuits, who came under his care in February last; having suffered for more than

twelve months, from severe neuralgia, implicating chiefly the portio dura, the sub-occipital, and branches of the fifth. Mr. Wing says:]

At this time he was completely shattered; the mind was evidently losing its power, memory was failing, and he was sinking under the apprehension of a speedy dissolution. His pulse was fifty-four, and labouring; tongue coated with yellow; skin natural; urine plentiful, sometimes thick; bowels generally regular; appetite defective; countenance sallow and anxious. He could not sleep. For twenty years before he had been subject to a peculiar compressive pain in the head on the approach of thunder. The thoracic and abdominal viscera were healthy. Counter-irritants were applied behind the ear, and the following ointment applied over the affected parts night and morning:—veratria, thirty-six grains; spermaceti ointment, half an ounce: this application, though it produced no eruption, gave immediate relief to the nose and forehead. A purgative of calomel, jalap, and ginger was administered, which acted freely; and seeing that the affection was not one of periodicity, and looking at the languid state of the circulation, Mr. Wing ordered him a draught containing the ammoniated tincture of valerian, the aromatic confection and peppermint water, three times a day. A nutritious diet, with wine, and subsequently bitter ale, was enjoined. Ten days' perseverance in this plan of treatment produced such an amendment that he slept well; his appetite improved, and altogether he was much better. In a month he was in perfect health, and able to resume his usual duties. He continued his ale, and used a shower-bath daily; no mercury was given beyond the dose of calomel. Mr. Wing regarded the case as interesting, from the following facts:—1. The speedy relief afforded by the counter-irritants, even in a case of so protracted a nature. 2. The beneficial effects of diffusible stimulants, combined with a cordial, and the utter uselessness of quinine, though largely administered. 3. The rapidity with which amendment, both in body and mind, took place, on the relief of the agonizing pain to which he had been so long subjected.

Medical Gazette, May 18, 1849, *p.* 872.

192.—*On the Practice of "Débridement."*—By Dr. C. Shrimpton. —The question, as it now stands in Paris, may be rendered thus:—Should large incisions be made to divide the aponeurotic membranes as a preventive means immediately on the receipt of a gunshot wound, or not? To which every scientific man is ready to answer almost in the very terms left us by our own Hunter.

Larrey, the illustrious representative of French military surgery, and his son, the Baron, have, it is true, greatly recommended *débridement*, but this practice is not continued at the present day. The potent antiphlogistic remedies, constant cold application, by means of ice or irrigations of cold water, so generally employed, have now completely superseded it.

In most cases, submitted to a proper treatment, the strangulation

does not take place, and these large incisions may be avoided; but when the tumefaction does take place beneath the resisting membrane, it is time enough to open the aponeurosis and liberate the compressed tissues. It must be acknowledged, however, that in many cases these incisions, although very extensive, do not procure the relief expected; for how often does it happen that the soft parts protrude through the opening of the fibrous membrane, and form a kind of muscular hernia! This consideration has deterred many surgeons of great celebrity and skill from having recourse to them even in the most marked cases, and their prudence has been verified by the happy results of an appropriate and energetic antiphlogistic treatment. The immense disadvantage of these large incisions cannot be contested, and when neglected too long the most serious accidents are the result.

The question at issue, whether these incisions *(débridements)* should be practised as a preventive means or not, is of great importance, and certainly is not adopted by either the civil or military surgeons in France. When the author of the article alluded to in the Lancet of the 9th, asks, "Whether the advanced stage of cure in which a large majority of M. Jobert's cases were, when the operation of *débridement* had been practised, could be considered as wholly due to this method of treatment?" it is evident there must be some confusion, for it is very certain that when cases have reached an advanced stage of cure they no longer require any incisions; but if the use of the bistoury should become necessary after a certain period, the incisions can then no longer be considered as *débridements*, but simply as the means of facilitating the exit of accumulated pus.

Lancet, Feb. 24, 1849, *p.* 207.

193.—*On the Use of Electro-Galvanism.*—By E. W. Tuson, Esq., F.R.S.—Electro-galvanism may be considered as a stimulant to the nervous system, a stimulant to the most minute fibrillæ, to the most delicate nervous texture, and likewise to the neurilema, or sheath of the nerves, promoting speedy absorption, so that, should the sheath, or even investing membrane of any nervous fibre be thickened or enlarged by extravasation, or any other means, by stimulating the nerves, promoting absorption, and removing the obstruction, the part will assume a healthy action. Sometimes chronic inflammation, or even disease, becomes established through the want of nervous energy to restore a healthy function so as to bring the different tissues composing membranes, or even other portions of the frame, to a normal state and to a proper degree of healthy action. Such may be the condition of the parts after a sprain; the ligaments have been lacerated, the synovial membrane injured, the tendons and their thin sheaths more or less bruised, the cellular tissue distended by extravasation; and it requires a large, or an increased action of the nervous power to restore these several parts to their former condition; but, should the joints so sprained be pre-

viously in a weakened state, a larger quantity of nervous power still will be required to bring about a cure.

We have, then, an agent in electro-galvanism, to act upon the nervous system, to excite its action, to restore it to a proper degree of energy, so as to accomplish a cure.

In rheumatism, electro-galvanism will often prove of the greatest benefit; but in such cases the remedy should not only be applied to the trunks of the nerves themselves, but to their more minute fibrillæ that are distributed to the surface of the skin, by which means the membranous tissue is more stimulated by the current passing through the several parts, from the one side to the other; and by such means the sparks may be made to pervade through the centre of the joints, and also to its investing tissues, which will afford relief by producing absorption.

Electro-galvanism is an agent which produces absorption quicker than any medicinal means that we are acquainted with; and this can be clearly proved by its application to indolent tumours, as it very frequently causes them to be absorbed most readily. After other means have failed, electro-galvanism will completely cure some indolent tumours. A lady residing near Harrow applied to me on account of an indolent swelling, situated beneath the under part of the right side of the lower jaw. The tumour occupied the space between the side of the inferior maxillary bone and os hyoides; all the usual means were employed for the absorption of the swelling, but without success. The electro-galvanic spark was then applied about once in a week, or once in ten days, on account of the distance she resided in the country. In the course of a short time the tumour began to diminish, and, ultimately she was quite cured. Many tumours have been dispersed by the aid of this agent; but it may be here mentioned, that more success has attended its application after medicinal means have been previously employed. In fatty tumours no benefit has been observed to occur from its use; but, in glandular swelling, experience has proved to me that it may be of the greatest service; and it is an agent that can be made to enter the most distant parts, or deep-seated swellings, and one that ought to be fairly tried.

Mr. Abernethy, in his lectures, used to make the following observations which are applicable here:—"Electricity is a part of surgical practice that may be considered as *unique*. All other means operate on the surface; but electricity will pervade the very centre of the body. It may be so managed as to be made to pervade a tumour, even in the centre of the abdomen. It is a species of stimulation, and may be applied in various degrees of force. Much disputation has been raised as to the manner in which electricity operates on the nervous energy, but I speak of it as a stimulant operating on a local disease. Now as to its application, you must modify it according to the tenderness of the part; if you stimulate the part too much you will produce inflammation, and the tumour will increase. Now electrify one swelling, and the swelling subsides; electrify another, and it will increase. What can we think of it? and

think we must. We must consider that it acts as a stimulant and increases the action of a part. You should begin with very small charges of electricity. You would like the patient to feel it a little; but, if he managed so as to produce a feeling of warmth and tingling in the part, and let that feeling subside, if you saw that it did not increase the action too much, then touch it up again, and you might increase the force of the charge. I have very frequently heard people say, if you speak to them of electricity, 'Oh, I do not think it ever does any good; I have given it a very fair trial; I was electrified every other day for two months.' All this is very possible; and they might have been electrified for two years without any benefit, unless there be some precise mode adopted for its employment, and the effect it produces be regarded. This is the worst thing that can be done; it is this practising without intellect that constitutes empiricism; it is blindly adopting, in this way, a power without a principle to guide it, that I abhor above all things." The remembrance of these observations has induced me to employ electricity, and now electro-galvanism, in a number of cases of tumours with the greatest and most beneficial results. Electro-galvanism is far superior to electricity for many reasons, and much more calculated for surgical purposes. The force of the sparks can be so regulated that the stimulating effect should not be too great, by which means its employment becomes safe, and can be productive of no ill consequences, even if it should prove of no service. It becomes, therefore, an agent of great practical utility in judicious hands, and under a variety of circumstances can be employed with the utmost benefit. Its effects in promoting absorption have already been mentioned; and in cases of obstinate stricture, it has been employed with much advantage, producing more speedy relief than any other means that we can use in our surgical treatment. Not only do these observations hold good in stricture of the urethra, but also in some severe cases of stricture of the rectum. I might here detail the method of employing this agent; but I am always most willing to enter into a personal explanation with any of my profession, upon this or any other subject that will benefit or promote science.

Indolent ulcers, and even scrofulous sores, frequently result from the want of a proper nervous energy in the part; a want of tone in the nerves to produce a power sufficient to cause them to heal and promote a healthy action. We know that scrofula is a peculiar action affecting the lymphatic vessels and their glands; these parts are the immediate seat of this complaint; but let us look deeper into the cause, and I firmly believe we may trace it to the nervous system: if so, have we not it in our power to benefit such cases by electro-galvanism. My experience warrants this opinion, and my observations clearly lead me to believe, that great and permanent benefit may result in a number of hopeless cases that are in this great metropolis. Ulcers may have a modified current passed through their whole surface, even if ever so extensive; and medicinal agents may, if necessary, be employed by the same means,

which will produce the utmost benefit. By the aid of electricity, we have been able to decompose a solution of sulphate of copper and to restore it to its primitive metallic state; we see this in the electrotype, and I look forward to a period when we shall, by similar means, be able to produce some greater and even more advantageous results upon the human frame, bestowing permanent and lasting benefit upon the afflicted sufferer.

In cases where it becomes advisable to stimulate the more minute fibrillæ of nervous filaments which are distributed upon the surface of the skin, arising from the main trunks of nerves connected with the deeper seated branches of a part, it can be accomplished with much advantage. In cases of obstruction to the performance of any natural function, electro-galvanism will be most serviceable in stimulating the nervous action, and thus restoring the organ to a state of health. Medicinal agents do much in the treatment of disease; but electro-galvanism will do more, and produce a more decided result, and a much more permanent advantage may be looked forward to from its proper application.

In cases of sciatica, after blisters, colchicum, morphia, warm baths, acupuncturation, and where all the usual remedies have failed to give relief, electro-galvanism may be safely recommended with every chance of success; benefit will be felt even after the first or second application; and the patient will solicit a repetition of this agent as affording the greatest relief.

Medical Times, March 10, 1849, *p.* 377.

194.—*On Copalchi Bark; a New Bitter.*—By Dr. James Stark.—[*Copalchi* is the Indian name of the bark of a tree growing in Chili and Mexico, and which appears to be the *croton suberosum* of Humboldt and Bonpland, and the *c. cascarilla* of Professor Don. It is an agreeable aromatic bitter, yielding its properties to water or proof-spirit. Dr. Stark says,]

Since I received the first samples of copalchi bark, I have made trial of it in a few cases, which seemed tolerably well fitted for testing its properties,—if it possessed any.

The first case was one of atony of the stomach and bowels, with weak and imperfect digestion, and irregular action of the bowels, at one time costiveness, at another slight diarrhœa existing. In this case, the usual bitters as gentian, quassia, and calombo disagreed, exciting nausea, &c., while Peruvian bark and quinine increased the headach, and induced a feverish state of the system. The case, however, wonderfully improved under the use of the simple infusion of the Copalchi, of the strength of half an ounce of bark to the pint of boiling water, given in table-spoonful doses three times daily.

In the second case in which trial was made of copalchi bark, the patient suffered from irregularity of the bowels, but with this peculiarity (several instances of which came under my notice during the past winter during the prevalence of cholera), that twice daily, viz.,

at three o'clock afternoon and three o'clock morning, more or less violent spasmodic cramp in the bowels came on, preceded by shiverings and coldness, and terminating by a sweating stage. Quinine in 1½ grain doses twice daily, had been given for two days, with the effect of completely checking these intermittent paroxysms, when it was obliged to be stopped, in consequence of its inducing violent headaches, flushings of face, and feverishness. The paroxysms immediately returned as before, but, on substituting infusion of copalchi, giving a wine-glassful at two o'clock afternoon, and the same quantity at bed-time, the paroxysms were arrested, and have not since returned.

Like relief followed in another but milder case of the same nature. In this case, the cure was trusted entirely to the copalchi, no other medicine being given, in order to see whether it really possessed any antiperiodic powers. It is therefore scarcely possible to doubt that it possesses some antiperiodic virtue, so that we can easily believe what is stated of its powers by the Mexican and Puruvian physicians in arresting the paroxysms of intermittent fevers.

It appears to me, that one of the great wants in the medical practice of the present day is, a good light bitter of some real therapeutic powers. Most of the bitters in common use are harsh, disagreeable, and heavy, often exciting nausea, aggravating rather than allaying the irritability of a stomach already too irritable. To avoid these it has become of late too much the practice to employ quinine, bebeerine, strychnine, or other concentrated bitters or alkaloids, which in many cases do more harm than good. Satisfied I am of this, that in dyspeptic cases especially, by employing the alkaloids or bitter principle, separated from the aromatic, resinous, or other principles with which they are usually associated, we destroy to a great extent the therapeutic powers of the drug, and fail to derive those benefits which we should receive from making use of a spirituous extract, a tincture, or even the simple infusion or decoction of the drug. The warm aromatic principles, associated with the powerful bitter in the copalchi, seems to me to supply the want of a light bitter, which most practitioners must have experienced; and it is to be hoped, that it will succeed in the hands of others as much as it has done in mine.

It may be remarked, that the infusion and decoction of copalchi are best made of the strength of half an ounce of bark to one pint of water. The tincture, with one ounce of bark to one pint of proof spirit. The dose of the infusion and decoction is a tablespoonful or small wineglassful twice or thrice daily. Of the tincture, one or two teaspoonfuls, or of the extract from one to two grains, twice or thrice daily.

Edinburgh Medical and Surgical Journal, April 1849, *p* 410.

195.—*On the Action of Astringent Medicines.*—By Dr. A. B. Garrod.—A certain class of substances having the power of arresting hemorrhages, inordinate fluxes, &c., are so named, amongst the

most powerful of which, alluding only to those which act, not on the parts to which they are applied, but by absorption, and hence on remote portions of the frame, are gallic and tannic acids, or the vegetable productions containing them, preparations of lead, alumina, and persalts of iron. How do these remedies act? As they produce, likewise, an action on dead animal textures, it would seem that a similar effect takes place when they are applied to the living tissues, and that they act by imparting to the blood their own peculiar properties, hence enabling it to re-act on the capillary system of vessels. With regard to the action of tannic and gallic acids, I may remark, that during extensive trials of these two agents in cases of hemorrhage, especially in menorrhagia and hæmoptysis, I have always found the latter to be by far the most effectual; and the cause of this is readily explained by the recent experiments by Wöhler and Frerichs on the changes which tannic acid undergoes when taken into the animal economy, for they have shown that this acid does not pass through the system entire, but becomes converted into gallic and pyrogallic acids, and a humus-like substance; and, therefore, a given quantity of the tannic must be inferior to the same weight of gallic, as probably it is the latter acid only which acts as the astringent body. I had also observed, in my trials of these remedies, that constipation was much more constantly induced by tannic than by gallic acid, and Wöhler and Frerichs remark that in dogs the stools gradually ceased when large quantities of tannic acid were administered. Tannic acid appears to act most powerfully as a local astringent, gallic acid more effectually as a remote one. Some of the mineral acids, especially the sulphuric, seem to be astringent on the same principle, so likewise the salts of silver, zinc, &c.; but many of the remedies belonging to this class act in other ways than as astringents.

Lancet, Dec. 30, 1848, *p.* 709.

196.—*On a New Salt; Bisulphate of Iron and Alumina.*—By Sir James Murray.—[This new salt of iron and alumina is stated to be a valuable vermifuge, and an excellent application to foul and flabby ulcers, sore or relaxed throats, bleeding mucous surfaces, &c. It is thus prepared:]

When ten parts of well washed alumina, three of soft iron filings, and five of carbonate of soda or potass, are compressed by fixed air for a considerable time in distilled water, a clear carbonated solution is obtained. But when the pressure is removed, and the consolidation of the carbonic acid ceases, the solution no longer remains clear or permanent. When the fluid, however, is treated with sulphuric acid in excess, a *bi-sulphate* results, in the crystals of which the iron is permanently safe from rusting or peroxidating in the air, or even when dissolved, as is the case with other salts, or preparations of that metal. When used as an *internal tonic* or *astringent*, the iron of this salt does not irritate; when applied as a lotion, it does not rust or stain the linen.

Great care must be taken not to confound this new saline remedy with a salt called by writers "*iron alum.*" This latter salt contains no alumina at all. It only resembles alum crystals. In that "*iron alum*" the iron is in the state of *peroxide*, which is not magnetic, and is besides an irritating and exciting ingredient; whereas, on the contrary, this new medicinal salt contains only pure *protoxide* of iron, which is *magnetic*, and acts as a sedative rather than an excitant.

This new salt is also entirely different from a "*sulphate of alumina and iron*," mentioned in some chemical works. That salt is neutral. Its crystals are of a needle-like form, and it is not suitable to medicinal purposes. But in this preparation, the acid is in excess, and the aluminous astringency is combined with the styptic quality of the iron in such proportion as is best adapted to shorten relaxed animal membranes, to corrugate flabby fibre, and even to constringe the submucous tissues when so weak as to lose their contractile properties.

This quality of rendering mucous coats more firm is very desirable, when, like the cords of an instrument, they had lost the due degree of tension necessary to their harmony of action.

That some corrugation of the mucous membranes greatly contributes to diminish undue sensibility may be observed in many instances. Among others, obstinate vomiting soon ceased where this styptic salt was administered, so as to constringe the interior coats of the stomach. Observe how a topical corrugation, even of the true skin, deprives it of feeling. The hand of a builder loses its sensibility where fresh mortar touches the cuticle.

The interior coat covering the stomach of a horse is so insensible that no emetic will act upon it.

A proper solution of this salt not only abates the sensibility of interior tunics, but also of tender *tumours* and *inflamed glands*. It exerts a pressure upon them by contracting the integuments, and thereby diminishing the calibre of the vessels, and lessening the diameter of the swellings or local congestions.

Analogy, derived from the almost specific powers of alum itself in painters' colic, led me to use this improvement of aluminous properties in other intestinal disorders attended by cramps or spasms. It is admirable in *pyrosis* and old fluxes, attended with much pain.

I had no opportunities in Dublin of comparing the value of this salt in Asiatic cholera, but many reasons lead me to expect benefit from it, at least during the *premonitory stages, if there be much looseness of the bowels.*—Healthy blood contains iron, but when the atomic relations of that fluid are broken, the iron is precipitated, and its magnetic properties are extinguished in the circulation.

I contrived this salt in order to afford a *tonic quality* for discharges accompanied with debility, and to fulfil my favourite wish of having a persistent salt of the black oxide of iron that does not run readily into rust.

The absorption of an enduring protoxide of iron into the system

renders it capable of that *magnetic energy* on which, I think, a good deal of *vital action* depends. It also encourages a more free *inspiration of air, in order to furnish oxygen to the iron during its transit or decomposition in the circulation.* Whether these notions be right or not, the use of this new saline remedy has told well in many instances. I hope it will be used in the diarrhœa of cholera.

The new salt is very soluble in any cordial or aromatic water. I give it in doses of five or ten grains every two or three hours, till its effects succeed. In order to stay the bowels, in wasting looseness, during cholera, it might be repeated much oftener. The iron is not a stimulant in this salt, but rather calms whilst it sustains.

The aluminous quality abates tormina and soothes the mucous membranes. Even alum itself diminishes pain, and does not increase or induce paralysis of the intestines, as salts of lead are sure to do when long continued.

Dublin Medical Press, March 14, 1849, *p.* 162.

197.—*Observations on the Use of Alum.*—By Sir JAMES MURRAY. —[Sir James Murray thinks that the undoubtedly useful effects of alum as a remedy have been generally in a great measure neutralized by the state in which it has been employed, i. e., in solution in water, or in astringent infusions or decoctions which it precipitates. He says:]

To obviate these mal-administrations, I have long been in the habit of prescribing *alum* in substance, but in such state as to prevent its too sudden action on the tender tissues. I always order this medicine to be reduced to an *impalpable powder*, and to be mixed in molasses, as an electuary. In this way, the remedy comes by slow gradations to constringe the relaxed fibres, and does not display all its action at once, like the ordinary solutions; nor does it irritate the tunics or excite the bowels like *alum* in powder. No doubt, part of the properties of alum is owing to its supersaturation with sulphuric acid, but it is also a very desirable improvement to present this acid to the delicate and tender parts affected, in such a manner that its action shall not be too suddenly unfolded, but that the remedial effects may be displayed, little by little, until the fibres acquire consistency and natural tone.

At this time, when it is a desideratum to suggest every possible method of maintaining a healthy and tonic condition of the alimentary canal, by way of precaution against common or spasmodic cholera, I wish to mention that alum, when given in the state of electuary, in doses of about ten or twelve grains, three or four times daily, seldom, if ever, failed to cure that obstinate disease, which I elsewhere described as *catarrh of the stomach.* I will only give a short abstract of one case out of many others.

The recipe, of which I hold a copy in my hand, was given by me to a lady twelve years since; she now resides in Clontarf crescent, and continues well since that time.

Formerly, she vomited daily a great quantity of glairy viscid mucus. I have seen basons of it so viscid as to resemble the spawn of frogs. The lady suffered many years, whilst no remedy succeeded. The ropy mucus brought up was so albuminous, that reflecting upon the action of acidulous alum on albumen itself, I determined to give alum a fair trial. She had the electuary well made up by the late respected Mr. Kennedy, of Capel street, on the 30th October, 1837. His successors sent me this copy of the recipe, and I now produce it in case any member may desire to use its proportions.

In this case, it was necessary to prevent constipation, and therefore an equal quantity of impalpable super-tartrate of potass was combined with the alum, and also a little ginger, to obviate flatulence.

This combination was most successful in this and many other cases, both of catarrh of the stomach and also of the bladder, and other mucous cavities. Whether it may aid in preventing relaxations of the bowels, antecedent to cholera, it is probable there may be opportunities enough to determine.

There is another method of using alum, as a *gargle*, which far surpasses the usual applications. All gargles are hitherto taken into the mouth, and reverberated against the palate, but I found that alum, blended into an impalpable paste with honey or molasses, and then diluted with distilled water, forms an invaluable gargle, not only as a constringing lotion, diminishing the diameter of enlarged vessels, but also constricting turgid and relaxed glands and tunics. I was led to this practice many years since by noticing the inefficacy of any gargle used in the common way. So far back as the year 1816, I pointed out in the Edinburgh Medical and Surgical Journal the inutility of ordinary gargles used in the common manner. After that time, I noticed that by drawing the gargle here recommended into the throat, not through the mouth, but through one or both nostrils, the progress of cure was remarkable. There are untoward secretions of mucus, and sometimes an injected, relaxed, and turgid state of the coats and vessels of the back nasal passages: these troublesome conditions extend down the fauces, and cause sore throats, with inflamed appearances over the glands and entire surfaces. These cannot be removed by gargles applied through the mouth, but if appropriate applications of alum, honey, and rose water, be drawn into the palate through the *nose*, the *source* of the irritation is healed, and the continuous surfaces soon partake of the same salutary influence.

[Speaking of painters' colic,]

Sir James Murray said he had employed the remedy very largely in that affection; but with this qualification, that he gave it in larger quantities than in other complaints—viz., in doses of fifteen grains every two hours; and though it acted very strongly as a purgative in some cases, owing to the large quantity of sulphuric acid contained in it, he found its administration to be most success-

ful. With respect to the *modus operandi* of alum in such cases, he was of opinion that in the first instance it probably acted by reducing the carbonate of lead to a sulphate. Sir James Murray then proceeded to call attention to the well-known fact, that the water in leaden cisterns may become poisonous when the water is pure, but that where it contains any sulphates, it never is found to be injurious,—as giving some degree of probability to the view he took of the manner in which alum acted as a remedy in cases of painters' colic.

Dublin Medical Press, Jan. 24, 1849, *p.* 52.

198.—*A New Alkaloid in Cinchona.*—M. WINCKLER has detected, in some cinchona, closely resembling that of huamilies, the presence of a new alkaloid, *quinidine*, which crystallizes in a form similar to amygdaline. The crystals under the microscope are rhomboidal: they are very hard. Quinidine is more soluble in alcohol than cinchonine, less so than quinine, but almost insoluble in water. Sulphate of quinidine is not easily distinguished from sulphate of quinine, from which it differs only in the greater facility with which ammonia precipitates cinchonine from its solution. When sulphate of quinidine exists in sulphate of quinine, it may be separated by carbonate of soda. Quinidine is soluble in alcohol of sp. gr. 0·863.—*Journ. de Pharm.*, Oct. 1848.

Medical Gazette, Nov. 24, 1848, *p.* 897.

199.—ON THE USES OF COLLODION.

[The following abstract of the purposes for which collodion has been employed in surgery, is from a late number of the London Journal:]

1. In *wounds, ulcers, and other external lesions*, it has been employed with great success. In the American Journal of the Medical Sciences for April, 1848, its discoverer, Mr. MAYNARD, of Boston, states that Dr. Whitney had employed it in the *removal of a wen from the head.* To obviate the occurrence of erysipelas, from the presence of sutures, Dr. Whitney shaved the hair from the scalp, and by means of the cotton solution, glued some pieces of sheep-skin on each flap, at a short distance from the wound. These straps were then brought together, and retained in their position by sutures. The wound healed favourably; and pain, and the usual accidents arising from the presence and removal of sutures, were entirely obviated.—Mr. Maynard also mentions that Dr. Comstock, of Wrentham, U.S., "has recently employed this liquid as a dressing, in a case of *extensive laceration of the perinæum*, with a success that, he thinks, never attended any other mode of management. The dressings remained firmly attached, and solid, during the process of healing, notwithstanding they were for a time almost constantly

covered by urine and mucus, and subject to being displaced by the motions of the patient."—The Monthly Journal of Medical Science for July 1848, contains a report of a paper "On Solutions of Gun-cotton, Gutta-percha, and Caoutchouc, as Dressing for Wounds," read by Dr. Simpson before the Medico-Chirurgical Society of Edinburgh. He had employed collodion, with perfect success, in some cases of *painful fissure at the base of the nipple.* Having brought together the edges of the wounds, he applied the collodion, which formed a protection against all irritating influences, and permitted the child to suck, without causing, as it previously did, pain to the mother, or disturbing the dressing. The healing process took place rapidly.—Mr. Erasmus Wilson (Lancet, Nov. 18, 1848, p. 553), says, that in two instances of *chapped nipples,* in which he used it, it seemed to "work a charm upon the painful skin. The gaping cracks were instantly drawn together, and almost obliterated, by the contracting power of the remedy; and were effectually shielded from the influence of moisture, and the pressure of the gums of the infant, in consequence of the rapid evaporation of the ether in an instant of time."—Dr. Simpson also mentions, in the above-cited communication, that, in a case where Professor Miller had *removed a portion of necrosed bone* from the lower jaw, he (Dr. S.) dressed the wound with collodion, with the effect of retaining its edges in apposition.—Mr. Brown made a communication to the Westminster Medical Society, Dec. 3, 1848, stating that he had used collodion, with advantage, in cases of sore nipple. (Lancet ,Dec. 23, 1848.)—The British-American Journal, for August 1848, states that Dr. Payne, dentist, of Montreal, appears to have suggested the use of the collodion in *burns;* and Dr. Crawford, of the same city, employed it in the case of a young gentleman who met with a severe burn of the face and hands. The burn was covered with a thin glazing, which completely excluded the air; and the pain almost immediately subsided. Its utility in burns has been confirmed by other practitioners.—In the Dublin Medical Press for October 4, 1848, Dr. T. R. Mitchell gives the result of his experience of the use of collodion in *ulceration of the os and cervix uteri.* He considers it greatly superior to nitrate of silver for forming an artificial covering to the ulcer, and permitting the healing process to go on underneath. The ulcerated surface being wiped clean and dry with soft lint, the solution is rapidly applied, with a camel's-hair pencil, and allowed to dry; a second, third, and fourth coating, if necessary, can then be applied. The first application is attended with a slight burning sensation, caused by the ether, followed by a sensation of coldness, from its evaporation. The application requires to be renewed at the end of forty-eight hours, as the mucus collects beneath the dressing, and raises it. In cases of simple abrasion, three dressings have proved sufficient; in more obstinate cases, he has employed caustics first, and then covered the eschar with collodion; thus curing extensive ulcers in half the time required by other methods. He has also found it beneficial in cases of *vaginitis* without ulceration.—In the Annales de Thérapeutique

for September and October 1848, p. 241, it is stated, that M. Jobert, of the Hôpital St. Louis, and M. Robert, of the Hôpital Beaujon, have successfully employed it as a *dressing for wounds made in operations.*—Dr. Yvonneau, jun., of Blois, communicated to the Union Médicale for November 18, 1848, the particulars of a case in which he had employed collodion, with an amount of success exceeding his expectations. The patient, a child of five years old, had *extensive fistulous ulceration of the right cheek*, permitting the escape of saliva, as well as of food and drink; the cheek had also contracted very firm adhesions with the gums of both jaws. After an ineffectual attempt to remedy the mischief, by a common mode of operation and dressing, he determined, as a last resource, to try the effect of collodion. Having obtained anæsthesia by means of chloroform, he carefully brought together the edges of the wound, and retained them in their position by long and firmly agglutinated bandages, passing completely over the chin, upper lip, and *ala nasi.* Over the whole, he applied a layer of collodion; which, besides its adhesive property, completely protected the dressings from the saliva and food, which had been the main causes of the failure of the former operation. At the end of three days, a slight displacement of the dressings rendered readjustment necessary, when the edges of the wound were found united to a considerable extent. On the eighth day, the dressings were again removed; when, in place of the enormous fistulous opening, only a small cicatrix was found, which at length almost disappeared. The collodion, in this case, appears to have been of service, not only in preventing the dressings from imbibing fluid from without, but also by preventing the escape of saliva, externally, through the wound. The healing process does not seem to have been retarded by its presence in the interior. M. Yvonneau is of opinion that collodion might be advantageously used in the operation for *hare-lip.* He also states that he employed it in a case of *wound of the first joint of the thumb*, with disease of the ends of the bones, produced by the bite of an ass. Having performed resection of the diseased ends of the bones, he retained the thumb in an immoveable position, by means of linen bandages soaked in collodion. The result, however, he was unable to state, as the patient was still under treatment at the time of his making the communication.—In the Lancet for December 9, 1848, we find that Mr. Tucker, of Berners-street, had been successful in restraining severe *hemorrhage from leech bites* by means of compresses of lint dipped in collodion, and applied to the bleeding orifices. Where oozing appeared, the solution was applied by means of a camel-hair pencil; it was also applied freely round the edges.—In the same journal, for January 6, 1849, Mr. R. T. Wylde recommends it in the hemorrhage from leech-bites.—Dr. W. H. Ranking, of Norwich (Lancet, January 13, 1849), says that he has caused it to be applied, with much advantage, to the *incisions after cupping.*—Dr. Muirhead, of Glasgow, (Lancet, January 27,) says that he has seen great benefit arise from its use in *bed-sores.*

2. *Cutaneous Diseases.*—Mr. Erasmus Wilson has employed collodion with great benefit in these affections. In the Lancet of November 18, 1848, he describes the case of a young lady, who "had been suffering for many years with *scrofulous ulceration of the skin*, in various parts of the body. "She had been under my care," he says, "for several months, and the sores were much improved; but they were nevertheless very far from being healed. The diseased skin had the appearance of being worm-eaten, its hollows were filled with pus, which burrowed under the surface, and it was moreover thickened and congested. By the constitutional treatment which I had pursued, I had, to a great measure, corrected the pyogenic tendency of her system; but I felt the want of a local remedy that would serve as an impermeable covering to the surface, in fact, take the place of the lost epidermis, and act the part of an artificial scarf-skin. I had tried vulcanized caoutchouc spread with adhesive plaster, gutta percha, nitrate of silver, astringent solutions, ointments, and pressure by bandages, in vain, the remedy was not as yet found." Having received some collodion from Messrs. Bell of Oxford-street, he determined on applying it, and "on the next visit of the patient, removed the dressings from the sores, and pencilled them over with the new agent, which covered the surface with a powerfully adhesive film, of about the thickness of gold-beaters' skin, and effectually represented the lost scarf-skin. A piece of dry, soft linen was the only additional covering required; and she left me, much delighted at the abandonment of the local applications and bandages. This young lady has since continued to apply the collodion herself, night and morning, until the present time, when the sores are nearly well, and the congestion and scrofulous thickening of the skin almost gone." Mr Wilson says further, "The diseases of the skin in which I have hitherto used the collodion with advantage are, *chronic erythema of the face; intertrigo; chapped nipples, and chapped hands; herpes labialis, preputialis*, and *zoster; lichen agrius; lupus non exedens* and *exedens; acne vulgaris;* and several *affections of the sebiparous organs.* In chronic erythema of the face, its contracting power was most usefully evinced, as it was also in lupus non exedens and acne. In a troublesome case of chapped hands and fingers, resulting from chronic lichen agrius, the collodion acted, not merely as a protective covering, but also promoted the healing of the cracks more quickly than the remedies I have been in the habit of employing. In four instances, it immediately put a stop to herpes labialis, and in a very severe attack, it showed itself to be a powerful and useful remedy. Small superficial ulcerations of the corona glandis and prepuce, caused by excoriation, were cured by a single application; and in a gentleman very susceptible of excoriation, it acted as a prophylactic. From the success of the latter trial, I am induced to think that it might be usually employed as a prophylactic, in cases of exposure to syphilitic contagion."—In his paper in the Lancet, already quoted, Dr. W. H. Ranking says: "I have not had an opportunity of trying this preparation in *variola*, but I would suggest it as a

valuable application to the face, &c., for the purpose of excluding air, and thus preventing pitting. The same effect is produced by tincture of iodine, a solution of nitrate of silver, Vigo's plaster, mercurial ointment, &c., but it strikes me that collodion offers a peculiarly ready mode of obviating deformity. I need not refer to the fact, that the development and maturation of the variolous corpuscle is in some way connected with the contact of air, as it is always more decidedly and abundantly formed on the face, hands, &c., and is more sparingly developed on the hairy scalp of the adult, while on the scalp of early infancy it makes the same progress as on the face.

3. *As a Stopping for Teeth.*—In the Lancet for 30th December, 1848, p. 729, Mr. J. Robinson, dentist, Gower-street, states, that he has "frequently applied collodion in severe cases of *tooth-ache*, arising from exposure of the nerve, with perfect success, when no persuasion could induce the patient to submit to extraction." The method which he adopts is, to let the patient first wash the mouth with warm water, in which a few grains of bicarbonate of soda have been dissolved. He then removes from the cavity any foreign substance likely to cause irritation. After drying the cavity, he drops from a point the collodion, to which have been added a few grains of morphia, after which he fills the cavity with asbestos, and saturates with collodion. Lastly, over this, he places a pledget of bibulous paper. In a few seconds, the whole becomes solidified, and forms an excellent non-conducter of heat and cold to the exposed nerve. By occasionally renewing this, he has been enabled to effect a more durable stopping with gold leaf.

London Journal of Medicine, Feb. 1849, *p.* 197.

200. — *On Collodion.—Properties.*—Collodion, when properly prepared, is, at first, an opaline adhesive fluid, smelling strongly of ether, and becoming perfectly transparent, by the deposit of a tenacious shreddy material, when at rest. When a layer of this is laid on any surface, a transparent coating is left, by the evaporation of the ether, which possesses, in a marked degree, the properties of *contractility* and *adhesion*, as well as *transparency*, *pliancy*, and *impermeability*. Dr Bigelow says: "By its powerful contraction upon evaporation, it places the edges of the incised wound in much more intimate contact than is obtained by sutures and adhesive cloth; unites them, by equal pressure, throughout the whole extent of the wound, and maintains them immovably fixed." In this letter to the Lancet, already referred to, Mr. Erasmus Wilson points out its contractile property as producing a local pressure of considerable power, on the surface to which it is applied; and hence he considers it a valuable agent, in the treatment of congestions of external parts of the body. Mr. Maynard proved its strong adhesive powers by the following experiments: "A strap of sheep-skin, glued to the hand by a thin layer of the solution, nine inches long, and one and a half wide, sustained a weight of two pounds. A second strap, attached to the hand by a layer of the substance, nine inches in

length, and three in width, sustained a weight of three pounds. A third strap, fixed to the hand by a layer of the liquid, twelve lines square, resisted the force of ten pounds without giving way; and a fourth strap of the leather, glued to the hand by a stratum of the solution, measuring one and three-fourths of an inch in length, and one in width, was not separated from its attachment by the gravity of twenty pounds. These statements may appear incredible: but they are founded on exact and carefully performed experiments, and are true." (American Journal of the Medical Sciences, April, 1848.) Its other properties are thus summed up by Dr. Bigelow: "It preserves the wound perfectly from contact with air, being impermeable to the atmosphere; while its adhesion to the skin is so intimate as to prevent the possibility of air entering beneath its edges. The substance remaining in contact with the skin and wound, after the evaporation of the ether, is inert so far as any irritating property is concerned: and this can scarcely be said of any resinous adhesive cloth or preparation." (Mr. Erasmus Wilson considers that "as a mild stimulant, it is fitted to exert a local alterative action on the congested capillaries of a chronic ulceration, and give activity to the healing process.") "It does away with the necessity for sutures in incised wounds of almost any extent. It is sure to remain in intimate contact with the skin till union is complete; and, being quite impervious to water, and presenting a polished surface, it allows the surrounding parts to be washed without regard to the wound or dressing. It is colourless and transparent; thus permitting the surgeon to witness all that goes on beneath, without involving the necessity for its removal. No heat is necessary for its application; and the presence of a moderate degree of cold is only objectionable, in retarding the evaporation of the ether. It may be made at a trifling cost; an ounce phial, intrinsically worth little, being sufficient for a great number of dressings."

Mode of application.—Dr. Bigelow gives the following directions for the application of collodion: "For straight incisions, of whatever length, provided the edges can be brought together without great difficulty, it is better to supply the solution in immediate contact with the skin, as follows. The bleeding should be arrested, and the skin thoroughly dried. If the lips of the wound are themselves in contact, the surgeon has only to apply a coating of the solution lengthwise over the approximated edges by means of a camel's hair pencil, leaving it untouched after the brush has passed over it until it is dry, during, perhaps, ten or twenty seconds. This first film will of itself have confined the edges together; but in order to increase the firmness of the support, more must then be applied in the same manner, allowing it to extend on either side of the incision, half an inch, or more." When the wound gapes, the edges must be held together; and if the wound be long, the collodion must first be applied to the upper part, and allowed to dry. In such cases, something more than the film of collodion is required to counteract the tendency of the edges of the wound to separate. For this purpose Dr. Bigelow recommends gold-beater's skin, or oiled

silk, which maintains the transparency of the dressing; it should be applied to the wound after the solution has dried and firmly contracted. Lint, or a piece of cloth, or tissue paper, though not transparent, would answer. If, however, adhesion by the first intention be not desired, the collodion may be laid on transversely like strips of plaster; and one strip should be dried, and have the support of gold-beater's skin, before the rest is applied. Room is thus left for the escape of pus, and for the surgeon to view the progress of the wound. Collodion answers particularly well after the operation for hare-lip, or cancer of the lip, where union by the first intention, and a narrow linear cicatrix, are so desirable. The use of one or two sutures to the mucous surface is not obviated, as this will not permit the collodion to adhere with sufficient certainty. Mr. Maynard says, that "in most instances it was employed in conjunction with straps of cotton and sheep-skin, forming with them strong, unyielding, adhesive straps, bandages, and encasements; and, after many experiments, I am convinced that this is the best and most effectual way in which it can be applied as an adhesive agent in surgery." (American Journal, ut supra.) The following remarks on its use in conjunction with bandages, in the dressing of wounds, occur in the Annales de Thérapeutique, Sept. and Oct. 1848, p. 242. When dipped in the collodion, bandages are apt either to be difficult of removal, or not sufficiently adhesive, from having dried before they can be applied. In small wounds, bandages are unnecessary; but in cases where they are necessary, they should be strongly fastened at each turn, by a layer of collodion, at the most distant part only; and the free part of the bandages may be sewed, or tied with strings. The adhesive dressings may be softened with collodion to remove them, and it may be removed from the hands by washing them in ether. Collodion may probably be used instead of starch or dextrine, to a bandage enveloping a limb; or perhaps the limb may be coated with several layers of the solution. Numerous other applications of the substance may be made; and its use to the pathologist or student, in dissections, must be obvious.

Ibid, p. 208.

201.—*On some Uses of Collodion, and on certain Improvements in its Application.*—By James Startin, Esq., Surgeon to the London Cutaneous Infirmary.—[Mr. Startin finds that collodion acts rather as an irritant in the more inflammatory affections of the skin, owing to its contractile property; but from this very property it is extremely useful in procuring the union of wounds by the first intention. It is particularly applicable after the operations for hare-lip, entropium, and ptosis. Speaking of the latter, Mr. Startin says:]

It is so contractile, that when applied to a part that is not stretched to the utmost by muscular action, it very much impedes, or altogether prevents the exercise of this power; and this hindrance continues until the cracking or dividing process commences, of

which mention has been made. It is only necessary for an experimenter to paint over the angles of his closed mouth, or the back of his open hand, to become convinced of the extent of this contractile property, and the degree of resistance it is capable of exercising. Such being a brief outline of the properties of collodion, it must be obvious, that without modification, it is applicable to very few diseases of the skin; yet the very qualities that unfit it for many of these complaints, render it a most useful agent in other cases for which it has been for some time used by continental surgeons, viz. in the union of wounds by the first intention; and it would seem particularly applicable in operations about the face, and as the best means of uniting many delicate parts; for instance, the red portion of the lip in the operation for hare-lip, and of the eyelid, after operations for entropium and ptosis.

Pure collodion may also be advantageously employed as a palliative in the latter case, as also in various paralytic affections of the facial muscles, where the antagonist muscle has distorted the features, the parts being adjusted by the finger to their normal position before the collodion is applied, and this position maintained until the solution is perfectly dry. As a bandage, also, to enlarged joints, of the fingers especially, the pure solution will be found useful; and its pellicle would seem to deserve a trial as an artificial tympanum, where such a contrivance may be indicated, the edges of the new membrane being readily attached to the walls of the meatus by a small brush, armed with the solution in its liquid form. Other instances, where the contractile qualities of collodion may prove of advantage, will, doubtless, present themselves to the surgical mind; but it will not be found so applicable to discharging ulcers as has been stated, (save in the case of chaps and fissures), unless applied after the following directions:—Dry the ulcer with bibulous paper; wash over its surface with a large soft brush, wetted with ether; dry a second time with the paper; apply by means of the same, or a second brush, the collodion in a circular manner, so as to cover the edges of the ulcer to a greater or less extent, as may be deemed necessary, and varnish over so much of the ulcer itself, as to leave a *small central opening* for the escape of the discharges. In this way, collodion becomes a most important adjuvant in the treatment of cases that are commonly regarded as the *opprobia* of surgery. I allude to chronic ulcers of the legs; for it will be perceived, that this expedient at once reduces a large sore into a small one, and does not prevent any stimulus judged favourable to cicatrization being applied in the dry form, before the varnishing process is commenced.

[Mr. Startin has been engaged in endeavouring, by the addition of other substances to collodion, to fulfil the the following intentions:]

1st. To render the the liquid opaque, and of such a tint as not to be distinguished from the skin on which it might be applied, whilst it should conceal defects; 2nd. To remove its great contractility,

and render it opaque, more elastic, and more closely resembling the solution of gutta percha I have referred to, without including the unfavourable properties of this solution; and 3rdly. To produce a varnish which should be porous, and thus imitate, as nearly as possible, the natural scarf skin, and thus prevent much of the heat and tumefaction which attends the application of an impermeable covering on the skin.

The first of these objects is readily attained by adding an ethereal tincture of turmeric or saffron, and of red Sander's wood, or alkanet root, so as to produce the required tint. The second after numerous experiments, is found to be best accomplished by the addition of a drying, or a fat oil, as linseed, cocoa nut, pure cod-liver, or lard oil, previously dissolved in ether; the proportion being half a drachm to a drachm of oil, to an ounce of collodion,—the exact quantity being regulated by the greater or less degree of elasticity and opacity required. It is quite remarkable, how completely this simple procedure will accomplish the desired end; for by its means, and the coloured collodion, so exact a representation of the cuticle can be obtained, that the varnish produced, when applied in a thin coat, cannot be distinguished from the surrounding skin, without close observation and magnifying power. It would also appear to be equally elastic with the cuticle, whilst its contractility is much modified, or entirely lost, according to the proportions of the oil employed; care must, of course be taken to *use the best materials only*, or the colour will not be permanent, but liable to change to a yellow dirty hue, whilst it will prove an irritant instead of a soothing application. I have much pleasure in recommending, as a most elegant preparation, the combination made by Allen & Co., of Plough Court, Lombard-street, or of Taylor Brothers, of Vere-street, Oxford-street, under the designation of *Collodion tinctum preparatum*.

The third object I have alluded to, namely, that of rendering the varnish porous, is also to be obtained by the addition of a small quantity of purified, highly concentrated, nearly anhydrous glycerine (the useful therapeutic agent I introduced through the pages of the Medical Times three or four years ago, and which I have every reason to believe has verified, in the hands of many, as it has in my own, all that I then said of it). By this substance the collod. tinct. ppt. can be rendered as soft as a thin layer of ointment, which it resembles in most respects, save that it forms over the part a uniform covering which is coherent, and not liable to be washed away by slight discharges, or external gentle ablutions, whilst it does not require the support of lint or linen.

Having now detailed, at some length, all the necessary modifications of this new addition to the "appliances and means" of modern surgery, it may be expected I may say a few words as to its practical application and utility. A glance almost at the properties it has been described as possessing, will show that it may, under one modification or other, be used where plaster, cerate, or bandage may be required, and where great strength and pressure is not needed; and also that it admits of the use of various other appli-

cations, stimulants, caustics, &c., to the parts afflicted, which can be employed before the collodion is applied. As a simple varnish in cases of chaps, chilblains, and other minor affections of the cutis at this season so prevalent, the collod. ppt. will be found a panacea: but in the bed-ridden, who are not provided with Dr. Arnott's scientific hydrostatic contrivance, it will be found no ordinary boon, as also in cases of incontinence of urine, and excoriations from the pressure of instruments, trusses, &c. As a prophylactic for practitioners in midwifery, in suspected cases, or where the hands are injured by disease or accident, it will be invaluable, as also in the dissecting room. Many other circumstances, under which its application may appear to promise an effectual result, will suggest themselves to every practitioner, so that it is needless longer to dwell upon them; I shall, therefore, only add that it should not be applied in too thick a coat, and that a large soft camel hair brush must be used, which should afterwards be washed in ether. A bottle of ether, also, might always be conveniently supplied with the collodion, so as to reduce the solution to the required thinness. Where ulceration is present, a portion in the centre of the ulcer should be left uncovered by collodion, in the manner I have already mentioned; and when any part concerned in motion is to be coated, the skin should be put upon the stretch, and marks, &c., should be concealed with a proper pigment, before the collodion is painted over the part.

Medical Times, Dec. 23, 1848, *p.* 177.

202.—*On a New Amalgam for Stopping Teeth.*—By. T. W. Evans, Esq., Paris.—[Mr. Evans states that he has employed this amalgam successfully for a length of time. He says:]

It is composed of chemically pure tin, prepared with much care, to insure its being free from any other metallic substance, and combined with prepared cadmium, in small quantities, and mercury. In using it so much mercury should be employed as may be required to make it more or less plastic.

The cavity of the tooth being previously thoroughly freed from carious matter, can be carefully filled with paste thus formed. In the course of a few minutes it hardens into a solid, and gradually acquires a still firmer consistence and toughness, exhibiting a whitish colour, or, if cut or burnished, a metallic lustre, like that of pure tin.

The advantages of this composition are, I believe, such as are possessed by no other amalgam. It retains its colour perfectly, neither oxidizing on the external surface, nor on that applied to the cavity, and, of course, it does not discolour the tooth itself. It fills each crevice of the cavity, and by effectually excluding moisture and all kinds of deleterious matters, prevents the recurrence of caries, and becomes sufficiently hard to withstand the friction of mastication. To these most important advantages may be added others—*e. g.* it is easily and quickly prepared, without the trouble

of heating it, as is the case with some of the amalgams hitherto used. It is readily applied to the cavity of the teeth, and without the creaking disagreeable sound which attends the employment of other preparations. It will not amalgamate with, or injure any gold clasps or plate bearing artificial teeth, which may be placed in contact with it; and, in case of its removal being necessary, it can be cut out as easily as a gold filling, as it forms a tough, almost ductile substance, and not a hard, brittle one, like the ordinary amalgams.

I have submitted it to the inspection and trial of some of the best dentists here and in London. As far as their opportunities of investigating have hitherto extended, I think they fully agree with me as to its advantages. It is, I believe, the best filling hitherto used, in those cases where amalgams are thought to be useful; and some of my friends are willing to award it higher praise even than this.

Medical Gazette, April 20, 1849, *p.* 685.

203.—*New Chair for Dental Surgery.*—We have lately examined a chair, to be used in the practice of dental surgery, which has been invented by Mr. Gilbert, a surgeon, of Suffolk-place, Pall Mall, and which we consider presents very ingenious and useful peculiarities. Its chief feature is, that it removes the fulcrum required in the extraction of teeth *out of the mouth*, so that the jaw is not liable to sustain injury. It consists of a padded and easy seat, with arms; a moveable back, which can be readily let down to any inclination, and which (the back) at its summit is semi-circular, so as to receive and retain steadily the head of the patient. At the right side is let in a strong circular steel bar; on this runs another at right angles, which can be promptly fixed by a screw at any required height. The cross bar, at its termination, holds a flat piece of metal, which being covered by lint, is brought opposite to, or within, the mouth, and serves as the fulcrum for the forceps used by the operator to rest on. In extracting the teeth of the lower jaw, the forceps is placed *superiorly to* this fulcrum. In the removal of teeth from the upper alveoli it is only necessary to let down the back of the chair, when the operator, standing behind the patient, makes the *inferior* surface of the bar his fulcrum, and proceeds to extraction exactly in the same manner as in the former case. The forceps having grasped the tooth, the operator, with a single movement *in one direction*, raises the latter out of its socket.

Lancet, Dec. 2, 1848, *p.* 608.

204.—*On the Treatment of Toothache.*—By C. Stokes, Esq.—[Mr. Stokes divides toothache into three stages:]

1st. In which it is caused by simple exposure of the pulp cavity, with diagnostic signs of that condition.

2nd. In which, super-added to this condition, we have also a discharge from the pulp cavity.

3rd. In which considerable pain occurs when either vertical

or lateral pressure is applied to the tooth, accompanied by a slight elevation of it from its socket, after several hours of repose.

Of these three stages of odontalgia, both the first and second are within the reach of remedial measures. In the third stage permanent relief is only to be obtained by the loss of the tooth; extraction is indispensable to prevent the recurrence of pain. The inflamed pulp, or "nerve," as it is ordinarily termed, being the principal, if not the only cause of pain in the first stage of odontalgia, the indication is obviously to reduce its extreme sensitiveness—speedily, effectually, and with the least possible amount of pain; hitherto the agents employed for the accomplishment of this object have been, generally, so unsuitable, that they have fallen deservedly into disuse. Thus the employment of red-hot wire, the application of either the concentrated nitric or sulphuric acid, the potassa fusa, &c., is now happily obsolete,—the injury frequently received by the soft parts from their use compelled their abandonment. For the removal of pain, as well as for the destruction of the exposed pulp, the combination of a very minute portion of arsenic, not exceeding the twentieth part of a grain in combination with muriate of morphia and creasote, is invaluable; by its use we can check with certainty the torture of toothache when existing in the first stage; and I do not hesitate to affirm, from an experience extending over a multitude of cases, that this remedy may be regarded in the light of a specific. I apply it on a very minute portion of cotton wool to the sensitive portion of the tooth, and its retention *in situ* is maintained by softened wax.

In twenty-four hours after its application, the dead dentine can be cleared away without pain. I recommend the pulp cavity to be completely laid open, the pulp to be broken down, and, if not too painful at the time, to remove it; but should any pain be complained of during this operation, it is advisable to desist, and renew the arsenical combination. The tenderness will have subsided by the following day, when the operation may be completed, and the tooth be plugged with gold, or any other suitable substance, in the usual way.

The second stage is most efficiently treated by primarily subduing the pain and tenderness by the use of the arsenic, morphia, and creasote. I then recommend the excision of the carious dentine, which being accomplished, that morbid condition of the pulp cavity, which gives rise to the secretion perceptible in this stage, is to be changed to one of health. To effect this change, I inject daily into the pulp cavity a weak solution of the nitrate of silver in distilled water, or an aqueous solution of alum of a moderate strength. The restoration of a healthy action depends much upon the amount of organic derangement; but, under ordinary circumstances, the daily injection of either of these solutions, for about a week or ten days, is sufficient for the attainment of this object.

In the third stage the general principles of antiphlogistic treatment are to be followed; thus the application of leeches to the gums, the use of sialagogues, and counter irritants, with the exhibition of

saline purgatives, combined with attention to the general health, are the remedies which occasionally afford relief. In this stage, however, experience gives but little encouragement to hope that permanent benefit can be derived from any remedy other than the loss of the affected tooth by extraction.

Medical Times, April 14, 1849, *p.* 473.

205.—*Use of Collodion and Asbestos for Toothache.*—By J. Robinson, Esq., London.—I have frequently applied collodion in severe cases of toothache, arising from exposure of the nerve, with perfect success, when no persuasion could induce the patient to submit to extraction, either with or without the use of chloroform or ether.

The method I adopt is to let the patient first wash the mouth with warm water, in which a few grains of bicarbonate of soda has been dissolved. I then remove from the cavity any foreign substance likely to cause irritation. After drying the cavity, I drop, from a point, the collodion, to which has been added a few grains of morphia; after which, I fill the cavity with asbestos, and saturate with collodion. Lastly, over this I place a pledget of bibulous paper. In a few seconds the whole becomes solidified, and forms an excellent non-conductor of heat and cold to the exposed nerve. By occasionally renewing this, I have been enabled to effect a more durable stopping than with gold.

Medical Times, Dec. 23, 1848, *p.* 188.

206.—*How to Remedy the Fragility of Nitrate of Silver Crayons.*—The brittleness of nitrate of silver is the source not only of considerable loss of the material itself, but frequently of danger to the patient, as when the fauces, œsophagus, urethra, bladder, and cavity of the uterus are being cauterized. M. Chassaignac has succeeded in remedying this evil, by having in the centre of the stick of caustic a thread of platinum wire. M. Blatin secures the same object by a wick of cotton, which is placed in the mould before the fluid nitrate is poured into it. The crayon thus prepared is rendered more solid, and, when broken, the fragments remain attached to one another.—*Bulletin de Thérap.*, Jan. 1849, and *L'Union Méd.*, Jan. 18, 1849.

Monthly Journal, May, 1849, *p.* 112.

207.—*On Endosmose and Exosmose.*—By M. Matteuci.—Matteuci has published another work in which he repeats the general views already put forward in his previous works, and also added a great many new views and experiments, especially on endosmose and exosmose, a few of which I shall notice here, as they are probably not generally known to most of my readers.

If a number of tubes with fine bores be immersed in a fluid, it will rise in them exactly proportional to the size of the bore; the finer the bore the higher the fluid will rise. This action is called capillary attraction, and upon it depend a great variety of phenomena,

not only in inorganic nature but also in vegetable and animal bodies, such, for example, as the effects known as imbibition, exosmose, and endosmose. In most animal and vegetable organs the structure resembles in effect a bundle of such tubes from the small spaces which exist between the parts. As the phenomena depend more on the nature and density of the fluids than on the substance of the tube, different fluids will ascend in the same tube, under otherwise similar circumstances, to an unequal height. If the blood happens to be altered in disease, so as to be rendered thicker or thinner by an increase or diminution of the fibrine or blood globules, or thinner by bleeding, or if it is modified by medicines, its capillary action will be changed—water, oil, spirits, soup, &c., will disappear from the stomach quicker or slower than in a healthy natural state. The absorption of a liquid will take place more rapidly the higher its temperature is. This absorption or imbibition is not influenced by the pressure or by the moisture of the atmosphere; it produces heat and electricity; and as it plays a very important part in the capillary motion of the blood, it is probable that it has some influence on the development of the chemical activity of organic bodies. The cause of capillarity is the opposition of heterogeneous and homogeneous attraction between a fluid and the solid tube. Endosmose and exosmose on the other hand depend on the mutual attraction of two fluids, one of which is more capable than the other of freely wetting a porous solid which forms part of the combination. Thus if we dip a piece of bladder or other animal membrane into water it will be wetted and completely soaked with the liquid, but if we dip it into spirit it will not be wetted. If we take a funnel to the stem of which a long tube is attached, and cover the mouth with a piece of bladder or other animal membrane, and then fill the funnel with spirits of wine, and place it with the bladder downwards in water, the water will pass into the funnel and mix with the spirit, and a column of liquid will be forced up the tube. The moving power in this case is the force of adhesion between the water and the bladder; the water ascends through the pores of the bladder as it would ascend through any other tubes, and comes in contact with the spirit, with which it unites and is at once removed, and this process goes on for a certain time; the height of the column of liquid in the tube being in some degree an index of the power called into action. Other fluids having a strong tendency to unite with water may be substituted with the same effect, and even solutions of different solid substances, or in fact any two liquids of different densities. In case both the fluids thus placed in juxta-position are capable of wetting the membrane or other porous diaphragm interposed there will be a flowing in as well as out, and hence the names which Dutrochet first gave the phenomena, of exosmose or flowing out, and endosmose or flowing in. Gases are also capable of exhibiting this phenomena, with the exception that in this case there is no limitation, as they are capable of unlimited diffusion through each other's mass. Matteuci applies this development of force to the explanation of a great variety of phenomena; among others he

mentions the experiments of Poisseuille's on the purgative and astringent action of medicines. He observed in drinking Seidlitz water that an endosmose of the serum of the blood took place with these waters, and with glauber salts, sea water, and other saline solutions, through the animal tissues. This is exactly what occurs in all cases of purging produced by such salts, the endosmose of the serum and the solution of the salt in the intestines. In such cases a quantity of the serum is carried off by the bowels, and the rapidity of the action is in proportion to the strength of the solution.

Muriate of morphia added to saline solutions diminishes the endosmose of the serum with saline solutions in the intestines: hence its action in diarrhœa.

Absorption is not merely an imbibition of a fluid by the tissues with which it is in contact, but a transfer of the fluid to the blood-vessels as in the experiment with the spirit mentioned above. It is in fact a true case of endosmose and exosmose, and will be facilitated by the greater number of vessels which may exist in the part; hence the lungs are better adapted for it than the cellular tissues, and the skin least; hence, also, the rapid absorption of ether and chloroform through the lungs. Absorption in general depends on the mass of the fluid already present in the body,—the more present the less is the absorption; it also changes with the temperature,—warm drinks are more rapidly absorbed than cold. The rapidity with which the fluid moves also facilitates it.

Exhalation is the opposite of absorption, and like it depends on the permeability of the vessels and on the mass of the liquid; is stronger in dry than in moist atmospheres, and frequently diminishes or increases tenfold. Imbibition, capillarity, and even molecular attraction, may overcome chemical affinity, and hence the organs of secretion cannot be looked upon as simple filtering apparatuses.

Dublin Quarterly Journal, Feb. 1849, *p.* 209.

208.—*On the Action of Cells in Secretion.*—Thus, in secretion, one cell selects its peculiar principles, and becomes filled with bile,—another with saliva; but, the active agent being in every instance a simple cell, it is no wonder that changes in the common liquid, within and without the cell, should affect the cellular endosmose, and that secretions should become, to a certain extent, vicarious; that the elements of bile, for example, should be separated by the cells of the kidney, and of urine by those of the skin. Still more important is the recent discovery of one of the most peculiar products of one excretion, urea, even in the healthy fluids of the body,—as in the aqueous humor of the eye; and of both urea and uric acid even in the blood itself, without the intervention of any secreting organ: a circumstance so improbable in the history of secretion, that although, as Dr. Prout informs us, urea was thus seen by him in 1816, he could not believe the fact till it had been established many years afterwards by Dr. Christison and other observers. —*Hawkins' Hunterian Oration.*

Medical Gazette, April 6, 1849, *p.* 586.

209.—*On the Chemical Relations of Wax and Fat.*—By B. C. Brodie, Esq.—[In a lecture by Mr. B. C. Brodie at the Royal Institution,]

The lecturer observed that there were chemical as well as animal fats, and that some of these are almost identical in properties. Among the fats shown were those from the cocoa-nut, the chocolate-nut, the palm, which contains a colouring matter the same as that of butter, the nutmeg, or mace, all of vegetable origin; also tallow and spermaceti, of animal origin.

Of one kind of fat, butter, the lecturer spoke more particularly. Milk, when mixed with alcohol, separates into a solid and fluid part. When filtered, the fluid part is transparent, and is almost wholly water: the solid part lying on the filter consists of various substances, especially a cream cheese, composed of butter and casein. 100 parts of milk contain 3 parts of butter, 5·1 of casein, and 4·6 of sugar of milk. Butter is composed of a solid and a fluid part: the solid part, margarine, may be separated into margaric acid, a beautiful crystallizable acid, and a sweet principle called glycerine.

Wax.—The cell of the bee is composed, as it were, of bricks of wax cemented together by an oil. Wax is an abundant product of nature, obtained from various sources. Chevreul showed the bloom on the plum and grape to be wax. It is also found in grasses, and in most plants. It is an interesting question, whether bees derive wax, as well as honey, from plants, or whether they form it in their own bodies? The true source of wax is the honey on which the bee feeds. Dumas and Milne Edwards found that wax was produced by bees which were fed on sugar alone. The bee is not the only wax-producing insect. A substance like spermaceti is brought from China, which appears to be the product of a small insect of the size of a fly, which feeds on a plant like the privet.

Mr. Brodie then described the properties of alcohol and acetic acid, and their chemical resemblance to the fats.

Alcohol, when it burns, is converted into carbonic acid and water. By the slower action of oxygen it forms vinegar. By passing alcoholic vapour over finely divided platinum, it is converted into an acid (acetic acid), as was proved by its reddening litimus paper. From wax and alcohol, acids are produced having an analogous chemical composition. Acetic ether is a body chemically analogous to wax. The product of the distillation of wax is a hydro-carbon, a crystalline body; the product of the distillation of acetic ether is also a hydro-carbon, olefiant gas. Acetic ether is a volatile body, giving a flavour to wine. There is a volatile body also in all fats.

As to the physical nature of these bodies, wax and fat are similar, but alcohol itself, although apparently very unlike these, is probably nothing else than a very fluid wax or fat. Alcohol cannot be frozen, but under the combined influence of an intense cold (—198°) and pressure, it becomes viscid or oily, and looks like melted wax.

It is an interesting question, whether fat is absorbed into the

system ready made. Casein passes into the system unaltered, but is it so with fat? Liebig and other chemists consider that sugar is the source whence the fats are produced in the animal system. By fermentation, sugar, it is well known, passes into carbonic acid and alcohol. Sugar has not yet been transformed into fat in the laboratory; but butyric acid, an acid contained in butter, has been obtained, by M. Pelouze, from sugar. Mr. Brodie concluded his interesting lecture by anticipating that, hereafter, chemists will probably succeed in making wax out of sugar.

Medical Gazette, March 16, 1849, *p.* 474.

210.—*On the Formation of Fat in the Animal Economy.*—By Dr. J. R. WARDELL.—[There can be no doubt, Dr. Wardell observes, that fat is very frequently derived directly from the food ingested, since fat vesicles have been demonstrated in the fluid of the thoracic duct; but it also appears probable that fat is actually formed in the economy, and that its formation is favoured by the use of various non-azotized substances, which contain much hydrogen and carbon. Dr. W. goes on to say:]

Experiments made in the feeding of the lower animals have proved how the addition of sugar to their food favours the feeding process. For cane sugar, the following is the formula:—$C^{12}H^{9}O^{9}$; starch, $C^{12}H^{9}O^{9}$; here are then those indispensable elements in the formation of fat. Starch and sugar are the great sources from which fat is produced. Now if we have to abstract from starch $C^{12}H^{10}O^{10}$, 9 atoms of oxygen, fat would be the result, as the latter is a formula for this substance. From this andother facts of a like nature which might be given, it is incontrovertible that fat is produced by a deoxidating process on non-azotised materials. "Liebig has pointed out," says Turner, that "when there is deficient supply of oxygen, the production of fat, which is the consequence of this deficiency, yields a supply of that element, and thus seems to keep up the animal heat and the vital functions. * * * "A goose tied up, and fed with farinaceous food altogether destitute of fat, acquires in a short time an increase of weight of several pounds, the whole of which is fat." "Again, the bee produces wax, a species of fat, from pure sugar." The negroes of the West Indies, and the Chinese slaves, sometimes acquire an enormous size during the sugar season, by drinking cane juice; and it was remarked by Galen, that the keepers of vineyards, who live on nothing but figs and grapes become fat. The ladies of Tunis and Tripoli are fattened to please their lords, with farinaceous food, and a seed called *drough.* Among the Asiatics there is a sect who pride themselves on their extreme corpulency, their diet consists of farinaceous vegetables, milk, sugar, sweetmeats, and ghee. They look upon corpulency as a proof of opulence; and many arrive at a great degree of obesity without tasting anything that ever has lived! Numerous instances might here be supplied where great drinkers of malt liquors have attained to extreme degrees of corpulency. It is the opinion of some that a century ago, fat people were then far more common than in these days, when the yeomanry and middle classes drank deep po-

tations of malt liquors, instead of ardent spirits. The elementary constituents of ardent spirits being alcohol, and an abundance of carbon entering into the formation of that compound, there is thus supplied an important material for the generation of fat; and was it not for the stimulation which alcoholic liquors give to the circulating function, and the increased action of the kidneys, which thus oppose the obese tendency, all descriptions of spirituous compounds would render dram drinkers more liable to corpulency. Those persons who are great gin drinkers, are from the diuretic properties of that spirit, less prone to become fat than those who are great rum drinkers; a fact which the vulgar have long ago observed, and which has amongst the lower orders passed into a truism. From what has been said above, it must be regarded that fat is secreted by a peculiar tissue, the adipose; and to this view most modern physiologists subscribe. Dr. Hassall, in a recent number of the Lancet, thus delivers himself relative to the fat formation. "It will be observed by the use of a lens only, that these masses (the fatty) are each composed of a number of distinct and opaque bodies of various sizes, presenting a smooth outline, having a more or less rounded or oval form, and held loosely together by fibro-cellular tissue, the extension of which forms the envelope that invests each of these bodies; it will also be further noticed, that each mass of fat is supplied with one or more bloodvessels, and that these break up into numerous lesser branches, one of which goes to each of the previously described bodies, being conveyed to it by the connecting fibrous tissue, and having reached the body it undergoes a further subdivision, the branches extending over its entire surface." The writer then proceeds to say that the vesicles are filled with cells, and these cells again with globules; that these globules go on becoming larger in size until they assume the normal characteristics of the matured fat vesicles. From these observations it is obvious there is a genuine secernine process; that there is a filamentous investment covering each vesicle; and that the fat particles are not merely placed in juxta-position, as contended for by Meckel; and it may be inferred that the granules are produced from the blood by an exosmosial process at the capillary extremities, like unto what we know of similar functions in the formation of other tissues in animals as well as in the vegetable kingdom.

Medical Gazette, March 30, 1849, *p.* 535.

211.—*Use of the Microscope.*—The microscope appears at present to be effecting changes in our knowledge of nature, no less wonderful than those views which similar instrumental improvements are opening to our senses through the telescope. I know not which extreme in magnitude is most calculated to excite our admiration and our reverence for our common Creator—the contemplation of the estimated 18 millions of telescopic stars in the milky way, or the 40,000 millions of silicious shells of galionellæ, according to Ehrenberg's calculation, in a single inch of polishing slate!—*Hawkins' Hunterian Oration*, 1849.

Medical Gazette, April 6, 1849, *p.* 604.

212.—*New Instrument for the Treatment of Aneurism.*—[Dr. CARTE has made a slight alteration, not in the principle, but in the mechanism of the instrument for compression in aneurisms. It is simply that "the compressing medium is elastic, instead of an unyielding force," by adopting vulcanized Indian-rubber straps. Some other alterations are pointed out which may be advantageous.]

Dublin Medical Press, May 16, 1849, *p.* 309.

213.—*Tincture of Indian Hemp in Sanguineous Uterine Discharges.*—[Dr. CHURCHILL lately recommended this medicine to the notice of the Dublin Obstetrical Society. It had been first used in these cases by Dr. Maguire, of Castleknack.]

Dr. Maguire had prescribed a small dose of the tincture of Indian hemp for a poor woman labouring under some form of neuralgia; and on inquiring into the effects a few days afterwards, the patient declared that it had cured both her complaints, and then, for the first time, informed Dr. Maguire that she had been suffering from menorrhagia. This led him to try it in some similar cases, and finding equally satisfactory results, he mentioned the fact to Dr. Churchill, requesting him to try it, which he has done extensively. Dr. Churchill mentioned it to the late Dr. Hunt and other friends, and the remedy he believes has had a pretty fair trial; and if their experience (as he believes) confirms his, the Profession has reason to congratulate itself upon the addition of a most valuable remedy for a class of diseases whose materia medica has been hitherto very limited. The largest class of cases in which Dr. Churchill has found the most unqualified benefit are those of menorrhagia, where the discharge, though excessive, is fluid, and but little mixed with clots, and when the uterus is not enlarged. In many such cases five drops of the tincture three times a day have stopped the discharge in twenty-four or forty-eight hours. When there is pain, too, if it be not excessive, relief is obtained without the addition of another anodyne. In other cases, when the discharge, whether too much or not, has returned too frequently, Dr. Churchill has succeeded in arresting or postponing it to the proper period by the tincture, just as can be done by means of ergot of rye. In those cases of menorrhagia, when the uterus is much congested and enlarged, and where the discharge is largely mixed with coagula, although it has succeeded in many cases, yet it has failed in other instances, and the success in some has been incomplete. Nevertheless, even in these, it is of great value; and finding that it possessed power even over uterine hemorrhage, it occurred to Dr. Churchill to try it in threatened abortion at an early period of the attack, when the hemorrhage was slight, and the pains rare and weak. In such cases, ergot of rye is out of the question; lead has but little power. Opium and cold applications and quiet are our principal remedies, but they often fail; and, therefore, the addition of a direct and powerful agent which should combine an astringent with an anodyne, would be a valuable acquisition. Dr. Churchill has now

tried it in six or seven such cases, and he has found that when employed sufficiently early, it succeeded remarkably well, but that at a later period it failed partially or wholly. Lastly, Dr. Churchill has tried it in three cases of cancer at a tolerably early period. He gave it on account of continued draining of blood, not to any great amount, and thought that perhaps its anodyne quality might to a certain extent supersede the use of opium. He does not think that these cases are sufficient for any definite conclusion as to its value; but the results will certainly induce him to repeat the trial. He does not for a moment suppose that it or anything else will permanently arrest the downward course of cancer, or that the hemorrhage will not return; but every degree of success, however temporary, every relief, even though slight, is of great value in these cases. Dr. Churchill does not pretend to explain its *modus operandi*; he can only say, that it appears to exert an astringent power in hemorrhages from mucous surfaces, and, also, to have a sedative or anodyne effect. The preparation he has invariably used is Mr. Donovan's tincture of the resin. He begins with five drops three times a day, in a few cases increasing it to ten, but seldom more. The effects are very soon seen, generally in twenty-four or forty-eight hours, often much sooner, nay, in some cases mentioned to Dr. Churchill by Dr. Hunt and Dr. Maguire, the effect was instantaneous. In some cases the beneficial effect was accompanied by a slightly unpleasant feeling in the head, resembling that from an extra glass of wine. In one case only has Dr. Churchill seen any more disagreeable results; but in that, five drops produced an extraordinary degree of nervousness and a sense of sinking, almost of dying, which gradually passed off.

Medical Times, May 19, 1849, *p.* 571.

214.—ON THE ADMINISTRATION OF CHLOROFORM.

By Dr. J. Snow.

Experience requires me to make the remark of this substance, which I made last year of ether,—that I know of no state of the patient, with respect either to age, constitution, *or disease*, which positively contraindicates the use of it, where it is required to prevent the pain of a severe operation, or, I may add, of one the patient greatly dreads. In making this statement, I must not be considered to be recommending the indiscriminate use of chloroform. On the contrary, I consider that everything connected with the patient should be taken into the account, and duly weighed, and the decision arrived at accordingly.

The period of life in which chloroform acts most pleasantly is childhood. In children, under thirteen years of age, it scarcely ever causes either mental excitement, or any of the struggling which is not unusual in adults just before insensibility ensues, and immunity from pain is obtained with less narcotism of the nervous

centres than in older subjects, as I stated before. It is never necessary to carry the narcotism further than the beginning of the third degree in children, at which time I believe their eyes are always turned up; and very often it is not requisite to carry the effects of the vapour beyond the second degree. Indeed, I have seen a child look about it with a smile on its face in the middle of the operation of lithotomy.

In a paper which I read at the beginning of the year, I recommended ether for children, in preference to chloroform, on account of the action of the latter being extremely rapid in young patients; but with the apparatus I described in the last paper, the vapour of chloroform can be so diluted with air as to become as mild and gradual in its action as one pleases, and since I have had small face-pieces suited for infants. I have generally given chloroform, and have administered it to a great number of children, from three weeks old upwards. But when the practitioner is only provided with a handkerchief or sponge, I still consider that the use of chloroform is not perfectly safe, and that ether ought to be employed.

As age advances, the action of chloroform, though equally safe and effectual, is less uniformly pleasant in appearance. In old age, indeed, there is frequently either groaning or a slight degree of stertor, not only during an operation, but even before it begins; so that the effect of the vapour, although quite as satisfactory to the patient, is less agreeable to the friends who may be looking on, than in young subjects. I have often exhibited chloroform in extreme old age, and always with the best effects: indeed, I consider that age is not a source of danger when care is taken. Old people are generally rather longer than others in recovering their consciousness, probably because, owing to their circulation and respiration being less active, the vapour requires a longer time to escape by the lungs. They sometimes do not perfectly recover their former state till twenty minutes or half an hour has elapsed from the conclusion of the operation.

The general condition of the patient as regards robustness, or the contrary, has a considerable influence on the way in which chloroform acts. Usually the more feeble the patient is, whether from illness or any other cause, the more quietly does he become insensible; whilst if he is strong and robust, there is very likely to be mental excitement in the second degree, and rigidity of the muscles, and probably struggling in the third degree of narcotism. This action of the muscles generally occurs when they are well nourished, whilst in the cases in which they are flaccid, and probably pale, it is usually absent.

[There is often a little trouble with hysterical patients, but Dr. Snow thinks that this should not prevent the use of chloroform, when on other accounts it is necessary. Epilepsy does not contra-indicate the use of chloroform. Neither does pregnancy; but it is not advisable to induce very profound insensibility in the pregnant state. And chloroform may be safely administered to patients

with any affections of the heart or lungs that do not themselves contra-indicate surgical operations. Respecting the diet of patients about to inhale chloroform, Dr. Snow says:]

The best preparation appears to be a very moderate breakfast or luncheon two or three hours before the inhalation. The operations in the hospitals are usually performed soon after the patient's dinner hour. The most suitable arrangement in these establishments seems to be, that the subjects of operation should have no dinner, but should have a slender lunch during the forenoon; such as a little bread and butter, bread and milk, or gruel.

[Dr. Snow gives the following directions for the exhibition of the vapour in such operations as amputation:]

When voluntary motion is no longer apparent, in order to become informed respecting the state of the patient, the eyelid should be gently raised, touching its free border. If he look up, it is evident that the narcotism has not exceeded the second degree. If no voluntary motion be excited, the third degree is probably attained, and if the eye be found turned up, this is pretty certain. But, notwithstanding this, if involuntary winking be occasioned by touching the edge of the eyelid, it is necessary to continue the vapour a little longer before the operation is commenced. In doing so, however, if the narcotism have already reached the third degree, and there be no particular rigidity or struggling, the valve may be opened a little further, so as to give the vapour in a more diluted form, or the inhalation may be intermitted for two or three inspirations at a time. In this way, insensibility of the nerves is obtained, without increasing the narcotism of the nervous centres. As soon as the sensibility of the conjunctiva is abolished, or so far blunted that the free edge of the eyelid, or the eye itself, can be touched without causing decided winking, the operation may be commenced with confidence that there will be no pain, and no involuntary flinching that will interfere with the operation. When there is struggling or great rigidity in the third degree of narcotism, it is requisite to continue the vapour a little longer till it subside. If there be any approach to stertorous breathing, the inhalation should at once be suspended, as was stated in a former paper. Stertor, however, never begins till the patient is perfectly insensible. The time occupied in the inhalation is usually from two to three minutes. The operation having been commenced, the medical man having charge of the chloroform should watch the patient's countenance, and if there should be any sign of returning sensibility, give a little more vapour during the short time occupied in removing the limb. After the amputation is completed, the vapour need not be repeated until there is decided evidence of sensation. When the arteries to be tied are not numerous, it is sometimes not necessary to repeat the inhalation. Generally, however, it is requisite to give a little chloroform at intervals, and if cold water have to be applied to stop the oozing of blood, or the flaps have to be united by sutures, it is advisable to keep the patient partially insensible till this is done.

Medical Gazette, Dec. 15, 1848, *p.* 1021.

[In a paper published in another journal, Dr. Snow observes:]

To facilitate the directions for giving chloroform, the various effects it is capable of producing on the nervous centres, may be divided into five degrees. The first degree includes the slighter effects that are experienced by the patient, whilst he retains sufficient consciousness to appreciate his situation, and know what is occurring around him. The second degree is the dreaming, or wandering state of the mind, which is observed, when the patient is not silent, immediately to follow the loss of consciousness. In the third degree, there are no voluntary movements, articulate sounds, or anything indicating the presence of ideas; but there may be involuntary muscular contractions, or rigidity. The fourth degree is a state of absolute relaxation of the voluntary muscles, in which no contraction can be excited in them. The breathing is sometimes stertorous in this degree. The fifth degree is the state of impeded respiration observed previous to death, in animals killed by chloroform. It must be stated, that the various degrees run gradually into each other, and cannot always be clearly distinguished; and that it is seldom necessary to carry the narcotism beyond the third degree, even in the most severe operations. The pulse is generally somewhat accelerated during the inhalation, but it is not a criterion of the action of the vapour.

The greater number of patients become quietly insensible, without offering any resistance; but, in a considerable part of them, there is some excitement, as soon as they lose their consciousness, and it is often necessary to hold their hands. A great number of female patients utter a singing sound at this stage of the inhalation. By continuing to administer the vapour the excitement is soon overcome. When voluntary motion, or talking, is no longer observed, it is desirable to examine the eye, to gain additional information as to the patient's state. If the eye be turned up, it is usually an indication that the narcotism has proceeded to the third degree, and the same is true of congestion of the vessels of the conjunctiva; but these symptoms are not met with in every case. The degree of sensibility of the conjunctiva is a better indication whether or not an operation will cause pain, than any other sign taken alone; but it is proper to take into consideration every symptom that can be observed. When the margin of the eyelid can be touched without causing contraction of the orbicularis muscle, or even when it causes but slight contraction, any operation can be performed without causing pain. As the effects of the vapour, unless very much diluted, continue to increase, for about twenty seconds, after the inhalation of it is discontinued, it is advisable, when the patient is nearly insensible, to intermit the vapour for two or three inspirations, now and then, or to dilute it with more air, if there be a valve for that purpose. Conducted in this way, the process of making the patient insensible usually occupies from two to three minutes; and this is safer than proceeding more expeditiously.

After the inhalation has been discontinued, the patient spontaneously recovers from its effects. Consciousness usually returns

in a few minutes,—in some cases suddenly; in others, after a short period of incoherence or inebriation. It is best not to speak to the patient prematurely, but to quietly await the complete return of consciousness. *London Journal of Medicine, Jan.* 1849, *p.* 52.

215.—*On the Mode of Exhibiting Chloroform.*—By Professor Simpson.—[The following observations are extracted from Dr. Simpson's pamphlet on anæsthetic midwifery:]

Mode of exhibiting chloroform, dose, &c.—In the course of the preceding observations, I have omitted making any remarks on the degree of artificial anæsthesia required in obstetric practice, with the exception of stating that, when instrumental or operative interference is adopted, the anæsthetic state must be made adequately deep—so deep that the patient must be rendered quite passive and apathetic. In fact, when induced for operative purposes in midwifery, the anæsthetic state should be as complete and profound as when it is induced for operative purposes in surgery. But, in common cases of parturition, the anæsthetic agent employed, whether chloroform or ether, does not, in general, require to be given in such large doses as in surgical practice.

The *two* main difficulties which every beginner meets with are these—namely to keep the patient in a state unconscious of pain, and yet not so deeply anæsthetized as to have the uterine action interrupted; for too deep a state of anæsthesia in general interferes with the force and frequency of the uterine contractions, while a lesser degree of the anæsthetic state leaves these contractions unaffected; and a still smaller dose often excites and increases them,—the effects, in this respect, of chloroform upon the uterus, being similar to the effects of opium in different doses. But the influence of the inhaled agent passes off in a few minutes, differing in this respect from the more permanent influence of a drug when swallowed; and if, at any time, the anæsthetic effect is too deep, and the uterine action is in consequence impeded, all that is necessary is to abstain entirely from exhibiting the chloroform for a short time, till the parturient contractions have been allowed to come back to their proper degree of strength and frequency; and then the anæsthetic agency is to be sustained as before, by giving the vapour with every recurring pain, but in smaller doses, or for a shorter time during each pain, than was previously practised.

During the anæsthetic sleep which chloroform induces in natural labour, the patient usually lies perfectly quiet and passive in the intervals between the pains, but moves more or less, and sometimes moans, as each uterine contraction begins to return. In the last stage, she generally, with every recurring uterine contraction, makes the usual violent bearing down muscular efforts, and the struggle can often be marked in the expression of her face. The muscular action of the uterus and assistant muscles goes on, and yet she remains quite unconscious. The strictest quietude should always be observed

and enforced around the patient; for noises and speaking, particularly soon after the chloroform is commenced, will sometimes excite and make her talk; and if this happen, we may require to exhibit to her a deeper dose than would otherwise be at all necessary.

The quantity of chloroform used varies both according to the duration of the labour, and the susceptibility of the patient. Usually when the handkerchief is used, about an ounce an hour is necessary, a small quantity being poured upon it from time to time. A less dose will suffice in some, and others require more. In one case lately, where the patient, in a first labour, was anæsthetized for two hours, I expended nearly six ounces,—large doses being necessary to keep her in a sufficiently deep state of unconsciousness. The first quantity which I pour on usually amounts to three or four drachms; but I always judge by the *effects*, not by measuring the dose; and I pour on an additional quantity in a minute or so, if it be required. In holding the handkerchief towards the patient, I take care that plenty of atmospheric air is admitted—and seldom or never put it in contact with the face.

When exhibiting chloroform in obstetric practice, and in the way I have described, I have often been struck by the circumstance, that its use is very rarely followed by sickness or vomiting.

In addition, let me state, that I have usually begun the employment of the chloroform when the os uteri was well dilated, or towards the termination of the first and the commencement of the second stage of the labour. But when the pains were severe, I have commenced it earlier, and when the os uteri was still comparatively little dilated. There is, I believe, no limit as to the date of the labour at which we may give it. (pp. 16-21.)

[Dr. Simpson and the profession generally in Edinburgh, still give the preference to the mode of administering the chloroform originally practised. In London, the simple napkin, saturated with chloroform, has been almost universally replaced by one or other of the numerous chloroform inhalers. If these latter fulfil the important conditions of admitting at will any proportion of pure air—of readily vaporizing the chloroform—and of easy and gradual application and withdrawal,—we conceive that they are better adapted for their purpose, more easy of renewed application and removal, and safer than Dr. Simpson's mode of administering with the napkin. It will be fresh in the memory of our readers, that in the greater number of the fatal cases, the patients were chloroformized with the aid of a napkin.—Ed. Med. Gaz.]

Medical Gazette, Feb. 2, 1849, p. 204.

216.—*On the Poisonous Effects of Chloroform.*—By Drs. Snow and Sibson.—[After remarking that the cases of death said to have been caused by ether could not be fairly attributed to the inhalation, Dr. Snow said:]

Chloroform was much more powerful than ether; the quantity of it required to induce insensibility was less than one-tenth as much,

by measure, as in the case of ether. Viewed in this manner, it was more than ten times as strong; but to ascertain their comparative physiological power when inhaled in a similar manner, their respective volatility requires to be taken into account. If a patient breathed air saturated with vapour of chloroform at 60°, twelve ordinary inspirations, of twenty-five cubic inches each, would suffice to produce the usual amount of insensibility required in a surgical operation; but it would require thirty-two similar inspirations of air saturated with vapour of ether, at the same temperature, to produce a like effect: therefore chloroform was nearly three times as strong as ether when inhaled in the same way; and this was one of the chief causes of the accidents which had happened. When an animal was allowed to continue breathing air charged with vapour of chloroform, after it had become completely insensible, the respiration shortly ceased; but if the air did not contain about more than five per cent. of the vapour, the heart continued to pulsate for some little time after the respiration had ceased, and the circulation was finally arrested for want of the respiration, as in all other cases when death took place by apnœa. During the interval that the heart continued to beat, the animals were easily resuscitated by artificial respiration. When, however, an animal was made to breathe air containing a greater quantity of vapour—ten per cent. or upwards—death took place in from half a minute to two minutes, and the respiration and circulation ceased about the same time: the reason of this was, that there was sufficient vapour in the lungs at the moment the breathing stopped to paralyze the heart as soon as it was absorbed and added to that already in the blood. Under these circumstances, it was evident that artificial respiration could be of no avail, and there was every reason to believe that this was the condition of the patients in the greater part of the fatal cases of inhalation of chloroform. To gain a clear idea of the cause of these accidents, it was necessary to consider the quantity of chloroform in the blood and in the lungs under different circumstances. Thirty-six minims was the average quantity required to be inhaled, to induce insensibility in the adult, but only about half of this was absorbed, the remainder being expired again. He had previously related some experiments undertaken to ascertain the exact proportion of chloroform in the blood in the different degrees of narcotism, by which it was shown that about twelve minims was the quantity in the second degree—the stage in which the mind wandered and voluntary motion was unsteady; about eighteen minims in the third degree—the usual stage in which operations were performed; about twenty-four minims in the fourth degree—the stage of complete insensibility with relaxation; a little more than thirty minims, the quantity that would be required to suspend respiration; and thirty-six or thirty-seven minims to arrest the action of the heart. The quantity of air usually present in the lungs was about 250 cubic inches. If a patient were breathing air saturated with chloroform at 60°, this quantity of air would contain thirty minims before it entered the lungs; but as absorption and

inhalation went on together, probably only from fifteen to twenty minims would be present in the lungs at one time during ordinary respiration; and if the chloroform were removed from the patient's mouth, part of this would be expired again, and not more than ten to fifteen minims would be absorbed into the blood after the discontinuance of the inhalation; but this, if the patient were already insensible, might so increase the narcotism as to lead to a fatal result. The time during which the narcotism might continue to increase after the inhalation was discontinued, owing to the absorption of the vapour remaining in the lungs, was about twenty seconds, as he had stated on a former occasion. These considerations would make it evident, that unless some systematic means were taken for having the vapour largely diluted with air, so that its effects might be gradually induced in not less time than about two minutes,—and no great quantity of chloroform could ever be present in the lungs at one time,—fatal accidents would be liable to occur. Unfortunately, Dr. Simpson, to whom they were indebted for the introduction of chloroform, recommended it to be used on a handkerchief, and to this mistake must chiefly be attributed the fatal cases that have occurred; for the handkerchief, of course, did not afford any means of regulating the strength of the vapour. Dr. Snow then related the particulars of the fatal cases, which he believed were seven in number—that of Hannah Greener, near Newcastle; and that of Mrs. Simmons, of Cincinnati, which he considered was the only one in which any form of apparatus had been employed, and in that case the dentists who administered the chloroform were not medical men. The remaining cases were a young woman at Hyderabad, a female patient at Boulogne, a young man at Govan, in Scotland, a boy seventeen years old, at Lyons, and a labouring man recently, in Westminster: he did not include the deaths of two persons from taking chloroform when no one was present, as he was considering only the medical employment of the agent; and he had not included the case of Mr. Badger, who, he considered, did not die from the effects of chloroform—first, because he scarcely inhaled any, the inhaler not having been applied to his face; and, secondly, because, according to the evidence of Mr. Robinson and his servant, there were no symptoms either of narcotism or distress, even for a single second, before his death; but his head and hand dropped, and he showed no signs of life afterwards. He considered that the case was one of syncope, through fear either of the operation or of the inhalation, concerning which he had been led to entertain apprehensions, and that the fatty degeneration of the heart under which he suffered rendered the syncope fatal. In nearly all the cases of death from chloroform, the insensibility had been induced within a minute, and in every case the dangerous symptoms set in very suddenly, proving that the vapour had been inhaled of great strength. In the five cases in which an examination was made after death, there was no particular congestion of the brain, the lungs were greatly congested in two cases, and more or less so in the other three. The cavities of the heart were quite

empty in the American case, and in that at Boulogne; but in these instances strong inflation of the lungs had been practised for a considerable period after death, and Dr. Sibson had found that the heart became emptied after death, during experiments with artificial respiration in the human subject. In these two cases, air was found in the veins; in that at Boulogne, in the pulmonary as well as the systemic veins. The members of the Académie de Médicine of Paris were inclined to attribute death to this cause, supposing that air could not reach the veins by rupture of the lungs after the left ventricle had ceased to act; but if artificial respiration could empty the heart of blood, it could also press out the air which would reach the left cavities of the heart by minute ruptures of the air-cells and pulmonary veins, and the arteries possessed the power of expelling their contents into the veins after death, as was proved by their being nearly always found quite empty. The recent case in Westminster showed the uncertainty of the handkerchief in a striking manner, since half an ounce of chloroform was expended in the first instance, without producing insensibility, but little of it getting into the lungs; and then, two or three hours afterwards, the same gentlemen, with a similar quantity, not only induced insensibility, but unfortunately they administered an over-dose. Whilst he did not wish to blame the persons in whose hands this case had happened, and who had high authority for their method of proceeding, he could not agree in the verdict, that chloroform caused death when it was properly administered. If the vapour were sufficiently diluted with air, and its effects carefully watched, he considered it quite incapable of causing death. At the conclusion of his paper, Dr. Snow performed two experiments on linnets, to show the different effects of vapour of chloroform, according to the quantity of air with which it was diluted. In the first experiment, twelve grains of chloroform were put into a covered glass jar, containing 100 cubic inches, when it was converted into vapour, of which it would form about nine cubic inches displacing as much air; a bird was introduced; it was quickly affected, and was dead in half a minute. The same quantity of chloroform was then diffused in a similar manner, in a jar holding 600 cubic inches. and another linnet put in; it became gradually insensible, and was removed at the end of about three minutes, and recovered completely in about two or three minutes. Dr. Snow said that the vapour required to be rather stronger than this to act as rapidly in larger animals; but that there was the same difference in its effects from a similar difference of strength.

Dr. Sibson said that Dr. Snow had referred to his observations on the mode in which the heart was paralysed: and on the effect of artificial respiration, by distension of the lungs in emptying the cavities of the heart. It was an ascertained fact, from the history of the cases of death from chloroform, that the heart ceased to beat in those cases at the same time that breathing ceased: and in the late fatal case at Lyons, respiration continued after the cessation of the heart's action. Now the experiments of Mr. Wakley and Dr.

Snow had shown that in the lower animals the heart continued to pulsate from one to two minutes after respiration had discontinued. Whence this remarkable difference? Why is it that in man, under chloroform, the heart's action should usually cease before respiration, while in the lower animals respiration should usually cease before the heart's action? This question it was difficult, but, in a therapeutical point of view, important to answer. Opium, in poisonous doses, excited in the lower animals constant tetanic contractions; but it did not do so in man. This difference was clearly due to the superior control exercised by the brain, by the mind of man over the reflex or spinal actions, his brain having a higher development, a greater controlling power, than the brain of any lower animal. Could the sudden action of chloroform on the heart of man be accounted for, physiologically, in the same way? Influenced by sudden mental depression, a woman will fall into syncope, pallid, and pulseless, to the ground: the heart's action suddenly ceases under the sudden influence of the mind. A French writer has recently suggested that syncope, the sudden cessation of consciousness, may be the cause of the sudden cessation of the heart's action under chloroform. It appeared to the speaker that this view was supported by physiological analogies. Another mode in which the action of the heart might be destroyed was the production of paralysis of the heart by the immediate action of the chloroform on its fibres, the chloroform (as he had stated in a paper, from which Dr. Snow had quoted) being sent more rapidly, and in greater concentration, to the muscular fibres of the heart, than to any other part of the body, the lungs excepted. This view, which had much to recommend it, was in some measure opposed by the fact, that the heart's action continued after breathing had ceased in the lower animals. From the valuable observations of Dr. Snow, it appeared, however, that sometimes, even in the lower animals, the heart's action ceased with respiration. This, however, may be due to the *third* way in which the heart's action may be arrested by the action of chloroform. Dr. Whytt found that under the action of opium the heart ceased, the right cavities being excessively distended. On lessening the blood in the cavities, the heart resumed its action. Sir B. Brodie observed the same phenomena under the action of tobacco, and he kept up the renewed heart's action by artificial respiration. Drs. Reid, Cormack, and Lonsdale, have made similar observations in animals poisoned by creosote and prussic acid. In these cases the heart's action has not been arrested by paralysis of its muscular fibre, but by overwork; it has had more blood in it than it could send out, and more resistance to overcome, in the pulmonic capillaries (for there is resistance to the circulation in both pulmonic and systemic capillaries under the action of narcotics and of asphyxia) than it was capable of overcoming. As yet we had had no opportunity of deciding by post-mortem examination, whether the death of the heart had been occasioned in either of the two last methods, as in all the cases artificial respiration, by inflation of the lungs, had been performed, and thus the blood had been expelled from the cavities of the heart. In all the cases, the heart's cavities were empty

or nearly so; and that this was due to the artificial inflation of the lungs, was proved by the speaker's experiments, referred to by Dr. Snow. In constructing diagrams of the position of the ribs and internal viscera, he first took a diagram before the inflation of the lungs, and then another after inflating the lungs to the full, and he always found, that unless the vena cava was tied, the heart was nearly emptied by the inflation: this was due to the pressure exerted by the expanded ribs on the distended lungs, which in their turn pressed upon the heart, and which was also compressed by the sternum and the diaphragm. Dr. Sibson considered that artificial respiration by inflation was inadmissible in these cases for the reasons just stated; still less was M. Ray's plan admissible, by the alternate compression and relaxation of the chest and abdomen by a many-tailed bandage; as under the abdominal pressure the contents of the stomach would be pressed out through the cardiac orifice, ascend the œsophagus to the pharynx, and regurgitate into the larynx and trachea, the vocal cords being paralysed. He had contrived a plan of performing artificial respiration, which had been suggested to him in a case of poisoning by opium, in which Dr. Gaskell had performed artificial respiration by placing plasters over the ribs, and, through their means, by drawing upon and expanding the walls of the chest from without, somewhat on the principle of the boy's leather sucker. The speaker had a leaden breast-plate made, with the handle; this was covered with an adhesive substance, melted caoutchouc, and was thus made to adhere to the skin over the sternum; on drawing this forward the chest was somewhat expanded, while on pressing it back, some air was expelled from the lungs; and so, by alternate suction and pressure, an artificial respiration was kept up without inflating the lungs. The amount of air so taken into the lungs was inconsiderable, but probably enough for the purpose, should artificial respiration be required for persons under the extreme action of chloroform. *Medical Gazette, April* 20, 1849, *p.* 692.

217.—*New Apparatus for Chloroform.*—Dr. Snow placed on the table, at the Westminster Medical Society, an apparatus with which he had lately administered chloroform in some cases. It consisted of a hydrogen balloon holding upwards of two thousand cubic inches, which was provided with a tap, and attached to a face-piece, containing valves, by means of a short and wide tube. When used, a measured quantity of chloroform was put into the balloon, which was then inflated with air by a pair of bellows; in this way the exact proportion of vapour in the air breathed by the patient was known, and the effects produced were very uniform. He found that three per cent. by measure of vapour sufficed to induce insensibility in two minutes; and this method of giving chloroform was attended with the further advantage, that the vapour was much less pungent and irritating, owing to its being uniformly mixed with the whole of the air. The expired air escaped by a valve, without returning into the balloon.

Lancet, June 2, 1849, *p.* 588.

218.—*On the Use of Chloroform in Midwifery.*—By Dr. W. F. Montgomery, Professor of Midwifery to the College of Physicians, Ireland.—[After stating his objections to the indiscriminate employment of anæsthetic agents in natural labour, Dr. Montgomery says:]

Now let me observe in conclusion, that while I object, and most strongly and solemnly, to the *indiscriminate* administration of chloroform in natural labour, I fully acknowledge its value and utility in general in obstetric operations, such as instrumental delivery, turning a child in utero, or the removal of a retained placenta, and also in some peculiar circumstances of natural labour, independent of any operation. Thus, I would give it in a case where the pain greatly exceeded its usual amount, and became intolerably severe. I would also use it in those cases occasionally to be met with in practice, in which a severe nervous pain is superadded to the ordinary pain of labour.

Thus, in one case, such frightful pain was endured along the course of the sciatic nerve that I thought the lady would have lost her senses, although a woman of a steady, sensible, and strong mind, and naturally very patient.

In another instance, a spasmodic pain attacked the sphincter of the rectum with such overpowering intensity and torture as to render the lady absolutely frantic. In such instances as these, I would certainly have administered this remedy, had it been known at the time of their occurrence, which, however, was before its introduction into practice.

With regard to its use in obstetric operations, while I fully acknowledge, as I have already stated, its value and utility *as a general rule*, I must add, that I think there are circumstances which should modify our *universal* adoption of it even for such purposes, lest we should for the sake of avoiding a temporary inconvenience, run the risk of entailing a more serious and permanent evil. Thus for instance, in a case of a retained placenta with hemorrhage, and a very flabby, uncontracted, and inert uterus, I think we should better consult the ultimate safety of the patient by omitting it, and subjecting her to the temporary suffering of passing the hand into the uterus, which would thereby be more effectually stimulated to contract, and to retain its contraction.

And again, I would say that, instead of commencing in all operations with the crotchet, by first putting the patient under the influence of chloroform, and throwing her into a state of insensibility, it would, in my judgement, be more judicious to wait, before giving it, for a reasonable time after reducing the head, to see whether the uterine energy might not be sufficient by itself to force down, and perhaps expel the diminished head, a result always most desirable, for many important reasons, and which we shall certainly be much more likely to impede than promote, by placing the patient in the first instance under the paralysing influence of chloroform.

Then again, in all such cases of instrumental delivery, we must never forget that our patient, if under the full sedative influence of

chloroform, has lost all power of warning us of any accidental error which we may commit in operating, of which her pain would warn her, were she not in a state of insensibility; it, therefore, behoves us, under such circumstance, to use the utmost caution and circumspection (at all times most necessary, but here in a far greater degree), lest, without being aware of it, we should inflict an injury which our best efforts afterwards might fail to remedy.

Dublin Quarterly Journal, May, 1849, *p.* 337.

[Dr. Snow, also, does not give chloroform in ordinary cases of natural labour: he recommends its use only when the labour is protracted or difficult, or when there is severe pain. He advises that a smaller dose be given than is required during a surgical operation, except in cases where we wish to stop strong uterine action, in order to turn the child. Dr. S. says:]

Chloroform should be given in midwifery, as in surgical operations, with an apparatus; or if the medical attendant be unprovided with one, he should put only from ten to fifteen minims on the handkerchief at a time. I feel obliged entirely to dissent from the practice recommended by Dr. Simpson, in the Monthly Journal of Medical Science for October last, of putting three or four drachms on the handkerchief to begin with. I do not dispute that he has tact enough to practice this plan without accident, but I feel sure that it will lead to fatal results in other hands. I also disapprove of his practice of handing over the handkerchief afterwards to the husband or nurse. This method of administering chloroform is also objectionable from the quantity of vapour that becomes diffused through the air of the room; and from Dr. Simpson's account of the quantity employed, it must cost a shilling an hour more than the plan I employ. This I mention, merely to show that dispensing with the use of an apparatus is not a saving.

When the first stage of labour is tedious and painful, and the patient wearied and desponding, the greatest relief may often be afforded without altogether removing consciousness; and whilst the uterine contractions are not powerful, it is best to give but a very small quantity of chloroform, or they become suspended, which, however, is of no great consequence, as they soon return. The best way of administering the vapour, is to let the patient inhale a little at the beginning of each pain. Commencing with the inhalation early in labour, does not entail a necessity of continuing it throughout; for the patient, knowing that she can have occasional relief, often bears the pain more cheerfully. And after the chloroform is discontinued, it exerts sufficient influence, for a time, to counteract the persistent uneasiness there often is between the pains, and thus to enable the patient to have short periods of refreshing sleep.

When the pains are stronger, rather more chloroform can be given, without retarding the progress of the labour, but the effect of it should not exceed the second degree; and except in obstetric

operations, the usual symptoms of labour ought to continue. The object should be only to prevent the patient's sufferings by making her unconscious; and whilst articulate complaints and loud cries are prevented, to allow the reflex or instinctive auxiliary action of the respiratory, and even voluntary muscles to continue, accompanied, perhaps, with some moaning. I believe that, with a little management, chloroform may generally be administered without retarding the labour; and in cases rendered tedious by rigidity of the os uteri, or obstructed by an unyielding state of the perineum, chloroform shortens the duration of labour very much, by causing the relaxation of these parts. There are instances, also, in which a moderate exhibition of the vapour seems to strengthen the reflex bearing-down efforts, which had probably been diminished by fear of the pain.

London Journal of Medicine, Jan. 1849, *p.* 54.

219.—*On Common Coal Gas and Dutch Oil as Anæsthetics.*—By Thomas Nunneley, Esq., Leeds.—[Mr. Nunneley, who has been long engaged in experiments with different anæsthetic agents, has, in common with Dr. Simpson, found *common coal gas* to be a safe, manageable, and effective anæsthetic, and not difficult to inhale. But the substance which he recommends as better than chloroform is]

The *chloride of olefiant gas*, as named in "Fownes' Manual"; the hydrochlorate of *chloride of acetyle, or oil of olefiant gas*, in the eighth edition of "Turner's Chemistry"; and formerly called *Dutch oil, or oil of the Dutch chemists.*

In appearance and smell it is not very dissimilar from chloroform, but in composition it differs most materially: chloroform being composed of *two* atoms of carbon, *one* of hydrogen, and *three* of chlorine, with a boiling point of 140°, the specific gravity of the liquid being 1·480, of the vapour 4·2; while the chloride of olefiant gas is composed of *four* atoms of carbon, *four* of hydrogen, and *two* of chlorine: its boiling point is 180°, the specific gravity of the liquid 1·247, of the vapour 3·4484,—constituting differences which are very important, and sufficient, I believe, to explain the facts of its superiority.

Medical Gazette, Feb. 23, 1849, *p.* 347.

[It appears that in the hands of both Dr. Snow and Dr. Simpson, Dutch oil did not give encouraging results; the vapour appearing to be of an irritating quality. Mr. Nunneley says, however:]

I find it to be the least irritating of any anæsthetic agents which I have tried, and further investigation justifies me in repeating all I have said in my notice of it. I have tried it upon many dogs and cats, young and old, in large and small doses; in no one instance have I seen any irritation caused by it, nor any repugnance to its inhalation. The animal quickly and pleasantly passes into a profound state of insensibility, and remains so. As I stated, a more

death-like condition is recovered from than after chloroform, and in every instance the animals have quickly rallied and remained well, except in one where I intentionally destroyed it to observe the *post mortem* appearances. Having ascertained the effects upon animals, I inhaled it myself, and found the action not only not disagreeable, but perfectly agreeable in every respect. My assistant, Mr. Beaumont has taken it once, and my pupil, Mr. Moorhouse, has taken it twice, on two successive evenings: both were rendered as insensible as is either necessary or safe for the performance of any operation whatever, or by whatever agent induced. In neither was there the least irritation; in fact both begged for more before becoming insensible, and when rallying from this condition; and both were immediately well. The latter of the two, who has three times inhaled chloroform, declares the effect of the Dutch oil, both at the time of inhaling and subsequently, to be far more pleasant than that of chloroform. I last night gave the Dutch oil to four gentlemen; in all it answered admirably, all had previously taken chloroform, and they were unanimous in declaring the oil to be more effectual, pleasant, and speedy, with less uncomfortable feelings afterwards.

Provincial Medical and Surgical Journal, March 7, 1849, *p.* 138.

[The following were the first cases in which the Dutch oil was administered to patients by Mr. Nunneley:]

The first was a case of exceedingly rigid os uteri, in a very delicate woman, with a troublesome cough, and very œdematous legs, but with a pelvis well formed. For three hours, the pains being strong, and very little dilatation produced, twenty minims of the fluid were put upon a handkerchief, and at intervals of five minutes, ten minims were put upon it twice; in all, 40 minims. Almost *instantly* dilatation began, and in fifteen minutes the child was born. The lady was not rendered completely unconscious, (which, I believe, to be very rarely necessary, and always, if possible, to be avoided in midwifery,) but was very happy, forgot her sufferings, and began to tell that which was uppermost in her mind.

The three following cases were patients in the Leeds Infirmary, and I am indebted to the kindness of my friends, Messrs. Smith, Hey, and Teale, for the opportunity of giving it to them.

The first was a man, 55 years of age, who had had for some years so great contraction of the adductor muscles of both thighs, as almost to fix the extremities. Forty minims were given upon a cloth, not held at first very close over the face. Before becoming unconscious he muttered and moved a little. Twenty minims more were given, when he became perfectly unconscious, with relaxation of the muscles. This was kept up by another twenty minims, which had the effect of continuing the anæsthesia. During the time forcible abduction was gradually made, with considerable improvement to the power of separating the legs. Eighty minims were given in all.

The next was a woman, aged 42, in whom a small malignant tumour was removed from the side. Forty minims were given, which at once put her into a complete condition of anæsthesia, without uttering a word, or moving at all.

The third patient was a boy, 15 years old, who, for malformation of the lower extremities, had the inner hamstring muscle of both legs divided. He had thirty minims given at first, then twenty, and afterwards ten, in all, sixty. He was not so quiet as the woman, but altogether unconscious, even when put to bed, although the operation and dressing, &c., necessarily occupied some time.

In none of these four cases was the least irritation or cough produced, and neither at the time, nor afterwards, was there any unpleasant symptom of any kind. I need not mention that a much larger quantity of chloroform would have been required to produce a similar condition, and would only further add, that I believe the little uneasiness witnessed in the man before passing into a state of complete anæsthesia, arose from the quantity of Dutch oil given not being quite sufficient; but until the exact effect of it was known, I preferred giving too little rather than too much.

Provincial Medical and Surgical Journal, March 21, 1849, *p.* 166.

[We have only space left to refer to the forthcoming volume of the Provincial Medical and Surgical Transactions, in which will be found a most learned and elaborate paper of above two hundred pages, and describing above five hundred experiments on the action of anæsthetic agents, in which Mr. Nunneley has attempted to explain their modus operandi. But the nature and extent of his inquiries will be best shown by referring to the queries with which he commences his essay. These questions are to the following effect:—

1. Are there not many more substances of anæsthetic powers than have hitherto been observed, and is there any chemical relation between them?
2. What is their modus operandi?
3. Is there any one of them which we ought to select in preference to others?
4. Is there any essential difference in the action of these substances according to the mode in which they are administered?
5. Are there any symptoms by which we may accurately judge of their effects?
6. In case of an overdose, are there any means which can be employed to counteract the effects?

We shall look with great interest to the publication of this valuable essay, the proof sheets of which we have already seen. It appears to us to be the most complete analysis of the question which has ever yet been spread before the profession, and which in our next volume we hope to abstract with care.]

220.—USE OF GLYCERINE IN DEAFNESS.

By Dr. Turnbull.

[Sometime ago, Mr. Yearsley published an account of deafness arising from deficiency of the membrana tympani, being relieved by the introduction of a bit of moistened cotton wool into the orifice. Dr. Turnbull suggests that the cotton wool should be moistened with glycerine; when moistened only with water, he says that it requires to be renewed daily:]

This great inconvenience I have found is much done away with by the wool being moistened with glycerine alone, or diluted with water. The glycerine possesses the peculiar property of attracting moisture from the air, and keeping the wool moist for a length of time, thereby rendering it unnecessary to have it frequently changed.

Another method that I have practised in cases of fractured or perforated tympanum for the last ten years, and I think with great benefit, is by dropping ten drops of glycerine into the ear, or a solution of glycerine and water of equal quantities, causing the patients to lay their heads down on the contrary side for the space of about five minutes; and two or three times when in this position, causing the patient to make a forcible pressure of air against the cheek, at the same time compressing the nose with the fingers. The air will then be forced out of the ear through the eustachian tube, and all that is required in general is to repeat this as often as the deafness shall return. I have had some cases that did not require a second application for several months. One case was a barrister from Edinburgh, who consulted me in 1839, and who previously was enabled to carry on his profession as a barrister by filling a small quill with saliva, and when he became deaf, pressing it gently into the meatus, leaving the fluid. By this means he established a tolerable state of hearing. Other cases, previous to my becoming acquainted with the utility of glycerine, were benefited by warm oil of almonds instead of glycerine.

I would desire to add, that in all cases of deafness, hearing will be generally obtainable to a considerable extent, when the patient is capable of hearing distinctly a watch when pressed upon the temporal bones. The application of glycerine, I have confined to cases of fractured tympanum, but it will be found a most valuable medicine for the protection of the membrana tympani, &c., from the air in almost all cases where there is a deficiency of ceruminous discharge.

Medical Gazette, June 1, 1849, *p.* 962.

SYNOPSIS,

CONTAINING

A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOREGOING PAGES OF THIS VOLUME; AND SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

DISEASES AFFECTING THE SYSTEM GENERALLY.

ANÆMIA.—In treating anæmia and its secondary disorders, first ascertain the exciting cause; and having arrested or removed this, give the preparations of iron freely, and for a great length of time, with a liberal allowance of animal food, and porter or ale, in preference to wine. Recommend also change of air, and travelling. (Dr. J. Begbie, p. 31.)

DROPSY.—Give the fresh juice of the root of the common elder, as a drastic purgative. (M. Vanoye, p. 16.)

Acute Inflammatory.—Apply leeches, or cup from the loins, and let the patient use the hot-air or warm bath. Give purgatives, especially such as cause watery evacuations: sudorifics, as liq. ammon. acet. in doses of half-an-ounce twice or thrice a day: and diuretics, as cream of tartar in doses of half-a-drachm or a drachm frequently during the day. Digitalis may be given, with due precautions, as may also decoction of broom; but irritating diuretics must be avoided. Mercury is unnecessary and injurious. (Dr. R. B. Todd, p. 15.)

Following Scarlatina.—Give a warm bath every other day, or every day, or twice a day if it does not depress too much; and give hydragogue purgatives, and unirritating diuretics, such as bitartrate of potash or liq. ammon. acet., especially the former. At the same time give nourishing food in such quantities as the patient can digest; or even stimulants,—port wine for instance. If under this treatment the affection does not yield in a few days, and especially if there is lithic acid or blood in the urine, take a little blood from the loins by leeching or cupping. If symptoms of head affection come on, apply free counter-irritation to the nape or scalp, by means of sinapisms followed by blisters, (Dr. R. B. Todd, p. 10.)

As prophylactic measures, be careful that patients convalescent from scarlatina, especially if they are scrofulous, wear flannel

clothing, and have mild but nutritious diet; and that they avoid exposure to chills and wet for a long time after desquamation has taken place. (Dr. J. R. Cormack, p. 376.)

Purpura Hemorrhagica.—Give nitrate of potash in doses of ten grains or a scruple with the same quantity of sugar, dissolved in cold water, every two or three hours; let the diet be as light as possible; and give a purgative of rhubarb and carbonate of soda occasionally. As convalescence progresses, substitute carbonate of soda with camphor mixture for the nitrate of potash; and gradually improve the diet. (Dr. C. Carlyon, p. 29.)

Rheumatism, *Acute Articular.*—Give one, two, or three ounces of nitrate of potash, dissolved in two quarts of water, every day. And apply to the affected joints a piece of spongio-piline with nitrate of potash in powder sprinkled freely upon its moistened surface. (Dr. W. R. Basham, p. 20.)

Chronic.—Besides constitutional treatment, apply to the affected parts a piece of spongio-piline which has had its moistened surface freely sprinkled with powdered iodide of potassium. (Dr. W. R. Basham, p. 21.)

Muscular.—When it affects the muscles of the head, the best remedy is the cyanide of potassium applied externally. When the cervical region is the part affected, the most successful means are sea-bathing, cold affusion, cupping, and acupuncture. (M. Valleix, p. 23.)

Rheumatic Gout.—After administering a purgative, give half-ounce doses of lemon-juice thrice a day. (Dr. G. O. Rees, p. 19.)

Scarlatina.—During convalescence from scarlatina, let the body be clothed in flannel, let the diet be mild but nutritious, and let exposure to chills or wet be most carefully avoided, not only till desquamation from the skin and tubuli uriniferi has ceased, but until the system has regained its wonted tone. These precautions are especially necessary in scrofulous children. (Dr. J. R. Cormack, p. 376.)

Scurvy.—Give nitrate of potash in ten-grain or scruple doses every two or three hours. See "*Purpura*," (Dr. C. Carlyon, p. 29.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Apoplexy, *Simulated.*—When symptoms simulating those of apoplexy arise from mere cerebral irritation, or from anæmia, treat them (after removing the cause, when practicable,) by giving tonics and especially chalybeates, with good diet. Let the patient take moderate open-air exercise, and use such purgatives as will secure gentle and regular action of the bowels. In extreme cases even give stimulants. When the symptoms are of

doubtful origin, blister and purge for a few days, at the same time allowing a generous diet, until the exact nature of the disease is ascertained. (Dr. H. M. Hughes, p. 53.)

Chorea.—Do not be misled by the urgency of the symptoms into the adoption of depressing treatment. But after correcting the secretions by the use of purgatives, let the cold bath be freely and frequently used, and give nourishing diet, with chalybeates, quinine, and metallic tonics. If, after the cessation of the spasmodic movements, paralysis or debility of the muscles remains, apply galvanism. (Dr. R. B. Todd, p. 66.)

Epilepsy.—The indications are to remove all sources of irritation; to promote nutrition and a general healthy state of both body and mind; and to prevent the access of the fits so as to break the habit of periodical recurrence. For the latter purpose administer chloroform once, twice, or thrice a day, so as to produce its full effect, taking, of course, all precautions in its administration. Or give valerian or the valerianates, or the juice of cotyledon umbilicus. During the fit, adopt no treatment beyond using such means as will preserve the patient from injury. (Dr. R. B. Todd, p. 361.)

Give an ounce of the expressed juice of the *cotyledon umbilicus*, or half a drachm of Hooper's inspissated juice, twice a day, and continue its administration for a length of time. (Mr. T. Salter, pp. 53, 365.)

Give the juice of cotyledon umbilicus or five-grain doses of an extract prepared from it, twice or thrice a day, for a considerable period. But, if the secretions are out of order, before commencing the use of this remedy give a course of gentle aperients. If the patients are boys or children, and otherwise healthy, commence by giving a few brisk doses of calomel and scammony, followed by castor oil; and if they are young men, attend to the state of the urethra, and relieve irritability of this part by the use of the bougie. (Dr. J. Bullar, p. 363.)

Neuralgia.—Rub in fifteen or twenty drops of chloroform, and repeat the application if necessary. (M. Leriche, p. 68.)

Paralysis, *Facial.*—In paralytic affections of the facial muscles, when the antagonist muscles distort the features, the distortion may be remedied by the application of collodion; the parts being adjusted to their normal position before the solution is applied, and being held in that position with the finger until the solution is dry. (Mr. J. Startin, p. 98.)

Paraplegia.—The alkaline and phosphatic condition of the urine may be remedied by the administration of benzoic acid in large doses,—two scruples four times a day. (Dr. A. B. Garrod, p. 26.)

Sciatica, *Chronic.*—Where all the usual remedies have failed, electro-galvanism may be safely recommended with every chance of success. (Mr. E. W. Tuson, p. 385.)

In severe cases, put the patient under the influence of chloroform, and with a red-hot iron make an eschar along the outer part of the dorsum of the foot. (M. Robert, p. 380.)

Tetanus.—The indications are, first, to support the strength by avoiding all over depletion, by giving nutriment and stimulants in small quantities frequently repeated, and by administering freely such medicines as quinine, iron, or ammonia; secondly to remove all ascertainable sources of irritation by acting upon all the secretions in a gentle manner; and thirdly, to attempt to reduce the exalted polarity of the spinal cord. Of the remedies generally used for the latter purpose, some are inefficacious and some unsafe; but there are two which ought to be fairly tried. The first is cold, employed by the application of ice contained in ox-gullets, to the spine; the bladder must be very frequently renewed, so that a decided effect may be obtained, and yet care must be taken that too much depression is not caused. The second agent is *chloroform*, which may be exhibited three or four times in the day, great diligence being exercised in the meantime in the use of means to uphold the strength. (Dr. R. B. Todd, p. 368.)

Trismus Nascentium.—Employ frequent and copious affusion of cold water, especially over the back, and after each affusion rub the child dry as quickly as possible, and wrap it in warm blankets. At the same time attend to the quality of the food, and the temperature and ventilation of the apartment; and endeavour to regulate the bowels. There is usually, however, but little time for these measures. (Dr. R. B. Todd, p. 371.)

Toothache.—Apply a minute portion of arsenic, not exceeding the twentieth part of a grain, in combination with creasote and muriate of morphia, on a little cotton wool, to the sensitive portion of the tooth, and retain it *in situ* for twenty-four hours, by softened wax. Then clear away the dead dentine, lay open the pulp cavity, and remove the pulp; if the operation gives any pain, desist from it, and renew the arsenical application until the following day. When the pulp and carious dentine have been removed, plug the tooth in the usual way. If there is a discharge from the pulp cavity, after subduing the tenderness by the arsenical application, and before proceeding to plug the tooth, get the condition of the pulp cavity which gives rise to this secretion relieved by the daily injection of a solution of alum or of nitrate of silver. In the still more advanced stages of toothache, hardly anything but extraction will do good. (Mr. C. Stokes, p. 401.)

Dissolve a little gum-mastic in chloroform, so as to thicken the fluid, and then apply it to the tooth on a little cotton wool. (Mr. Tomes, p. 68.)

Let the mouth be first cleansed with warm water containing a little carbonate of soda; then remove any foreign body from the cavity, dry it, and drop into it from a point, collodion in which morphia

has been dissolved, fill the cavity with asbestos, and saturate this with collodion; lastly, place over it a pledget of bibulous paper. By occasionally renewing this application, a more durable stopping with gold may at last be effected. (Mr. J. Robinson, p. 403.)

AFFECTIONS OF THE RESPIRATORY ORGANS.

Asphyxia *Neonatorum.*—First immerse the child in warm water, and upon withdrawing it, cover the chest with a cloth or sponge soaked in very cold water; again immerse it in warm water, and again apply cold, and go on alternating them until the respiration becomes established. (Mr. J. O. Fletcher, p. 339.)

Asthma, *Spasmodic.*—Let chloroform be inhaled during the paroxysm, so as to produce a moderate degree of anæsthesia, when the breathing will become easier. (Messrs. Beardsall, Chandler, Greenhalgh, and Leriche, pp. 98, 100.)

Bronchitis, *Chronic.*—The administration of the seeds of phellandrium aquaticum is very useful; especially in the bronchitis of young lymphatic subjects, and of old people. (M. Sandras, p. 97.)

Croup, *Membranous.*—Besides giving calomel, apply solution of nitrate of silver, forty or sixty grains to the ounce, to the interior of the larynx, by means of a piece of sponge cut into a conical form, and firmly fastened to a curved piece of whalebone. (Dr. J. Bryan, p. 373.)

Spasmodic.—See '*Laryngismus.*'

Diphtheritis.—In diphtherite or laryngeal croup, tracheotomy is applicable, as the false membrane does not extend below the larynx. The operation should be performed early, before the patient becomes exhausted. (Mr. H. Smith, p. 179.)

Hiccup.—Let chloroform be inhaled. (M. Latour, p. 69.)

Laryngismus Stridulus.—Give purgatives to remove accumulations or morbid secretions from the bowels. Lance the gums freely when they are swollen and inflamed, *but not otherwise.* Let the child be fed slowly, at short intervals, and with food of good quality. Dash a pitcher of cold water *suddenly* upon the back and shoulders, night and morning. And let the child be lightly, though sufficiently, clad, and taken into country air, if possible. During the paroxysm or when it is impending, dash cold water rapidly and liberally into the face. (Dr. R. B. Todd, p. 371.)

Phthisis Pulmonalis.—The administration of pure and fresh cod-liver oil, as free from taste and smell as it can be procured, is of the greatest advantage. Give it in doses of a teaspoonful (gradually increased to a table-spoonful, if the stomach will bear it,) one or two hours after the first three meals of the day, using as a vehicle any pleasant-flavoured fluid, such as orange wine, or infus. aurant. comp., with a little tinct. and syr. aurantii, or with a little diluted nitric acid. (Dr. C. J. B. Williams, p. 92.)

The indications are, to neutralize the morbid poison which exists in the blood, or to procure its elimination; to restore the function of nutrition to a healthy state; to check undue local excitement; and to support the strength of the system. Amongst medicines, cod-liver oil is well worthy of confidence; and in acute cases, mercury, which should be given with salines, especially nitrate of potash, and followed up by tonics. (Dr. W. H. Madden, p. 87.)

The respiration of air containing a good deal of carbonic acid gas, which was produced by burning charcoal in a brazier in a damp room, has been of great service. (Dr. Sokslow, &c., p. 96).

The seeds of phellandrium aquaticum are of great use as a palliative. (M. Sandras, p. 97)

Trachea, *Foreign Bodies in the.*—If the body moves freely up and down in the tube, do not interfere with it, but keep the patient perfectly quiet in bed or on a sofa, and advise him to avoid all effort to expectorate. If these directions are followed, the foreign body will no doubt soon be expelled. (Mr. J. P. Vincent, p. 185.) See also "*Tracheotomy.*"

Tracheotomy.—Tracheotomy is applicable in cases of laryngeal group or diphtherite, and should be performed at an early period of the disease, before the powers of the patient are exhausted. (Mr. H. Smith, p. 179.)

In cases of acute affections of the larynx in *adults*, when an opening into the air-passage is needed, perform laryngotomy rather than tracheotomy. Perform laryngotomy also in those cases in *children*, in which the obstruction has been occasioned by swallowing boiling water or other irritating fluids. (Mr. Prescott Hewett, p. 176.)

When tracheotomy has been performed for the extraction of a foreign body from the larynx, use a pair of forceps of considerable curvature, the last one-and-a-half or two inches forming little more than a right angle with the remainder of the blade. If the patient is young, and there is any difficulty in the extraction, divide the cricoid cartilage, and, if necessary, the crico-thyroid membrane. In the case of *children*, when we require an opening either for the extraction of a foreign body from the larynx or trachea, or on account of disease of the larynx, or accidents with boiling water, it may be advisable, instead of the usual operation, to divide the crico-thyroid ligament, the cricoid cartilage, and the uppermost rings of the trachea; and if requisite to slice out a portion of the two latter structures. (Dr T. G. Geoghegan, p. 184.)

In performing tracheotomy, make an incision through the integuments *only*, and push aside the other tissues, down to the trachea, with an eyed-probe or a pair of forceps. (Dr. M. Hall, p. 177.)

AFFECTIONS OF THE CIRCULATORY ORGANS.

ANEURISM.—In the treatment of aneurism by compression, it is recommended to use straps of vulcanized India-rubber, as the compressing medium. (Dr. Carte, p. 409.)

ARTERIES, *Wounds of.*—See "*Hemorrhage.*"

EPISTAXIS.—Give ten drops of oil of turpentine in a draught, every two or three hours. (John Hunter, p. 74.)

Give a few doses of infusion of matico. (Mr. J. H. Horne, p. 169.)

Keep the parts which are bleeding free from all coagulum, by syringing the nostrils repeatedly with *warm* water, until the bleeding ceases. It will not afterwards recur. (Mr. J. P. Vincent, p. 167.)

A method of plugging the nostrils by means of a simple instrument, extemporaneously prepared from a piece of the wire of wire-ribbon, is described by (Dr. C. Edwards, p. 172.)

HEART, *Polypus of the.*—When polypous concretions in the heart can be diagnosed during life, it has been recommended to attempt their solution, by administering substances supposed to render the blood more fluid. But any such attempt is quite futile. (Dr. O'B. Bellingham, p. 74.)

HEMORRHAGE.—Oil of turpentine is one of the very best styptics, either externally applied, or given internally. (John Hunter, p. 74, Mr. J. P. Vincent, p. 168.)

The best internal styptic is gallic acid, which may be given without fear, in doses of five grains two or three times a day, or even more, suspended in mucilage or made into a pill. It is well to remember, however, that it constipates the bowels. (Dr. R. B. Todd, p. 115.)

The internal administration of infusion of matico, is recommended as the best remedy in cases of hemorrhage. (Mr. J. H. Horne, p. 169.)

Passive.—Give nitrate of potash in doses of ten grains or a scruple with an equal quantity of sugar, dissolved in cold water, every two or three hours. (Dr. C. Carlyon, p. 28.)

From Wounded Arteries.—When the bleeding cannot be restrained by moderate compression on the trunk of the vessel, and perhaps on the injured part, apply a ligature to both the ends of the divided artery, or, if the artery is not completely divided, one above and one below the wound. (The search for the lower end of the divided artery will be facilitated by remembering that the blood flows from it in a continued stream, and is, in the lower extremity, of a dark colour.) If the lower end of the vessel cannot be found, try compression upon the track of the artery below

the wound; but if this fails to arrest the bleeding, expose the vessel and tie it as near to the wound as practicable. (Mr. G. J. Guthrie, p. 157.)

Bleeding from the superficialis volæ and the superficial palmar arch, may be quite restrained by placing a small hard pad of lint immediately upon the bleeding orifice, and then, taking advantage of the elasticity of the integument, drawing a strip of adhesive tightly over it. (Mr. J. P. Vincent, p. 168.)

In cases of secondary hemorrhage, where the parts are covered by granulations which conceal the bleeding point, and break down under the forceps,—where there is an inflamed and sloughy condition of the parts, and the patient is so enfeebled by previous hemorrhage that further loss of blood would be fatal,—and where uncontrollable arterial hemorrhage occurs in a case of compound fracture which is in other respects likely to do well,—pass a ligature round the main artery where it is in a healthy state. (Mr. Critchett, p. 164.)

In all cases of external hemorrhage the most important point is to keep the parts *free from all coagulum.* (Mr. J. P. Vincent, p. 166.)

After the Extraction of Teeth.—Keep the socket quite free from coagulum, and apply oil of turpentine. Give this medicine also internally, if the cessation of the bleeding should not render this unnecessary. (Mr. J. P. Vincent, p. 168.)

Give a few doses of infusion of matico. (Mr. J. H. Horne, p. 169.)

From Leechbites.—Roll a small piece of lint into a hard knot, less than a pea, and wiping the orifice clean of blood, place this little pad upon it; then, taking advantage of the elasticity of the integuments, draw a strip of adhesive tightly over it. (Mr. J. P Vincent, p. 168.)

Dip some of the flocculent portion of lint in collodion, and press it on the orifice, and then apply collodion freely over the whole surface. (Mr. Tucker, p. 169.) As an improvement upon this plan, after applying the compress to the orifice, cover it with a little disc of thin paper, and make pressure upon it with the end of a pencil or pencil case. (Mr. E. Wilson, p. 169.)

Ligature *of the Subclavian.*—In performing the operation of tying the subclavian artery internal to the scaleni muscles, after exposing the vessel and encircling it with the ligature in the usual way, carefully saw through the clavicle at its middle, taking care to guard the subjacent parts with a spatula. The intention of this is to allow of the approximation of the shoulder to the trunk, that there may be no tension upon the artery. (Dr. W. Hargrave, p. 164.)

VARICOSE VEINS.—Instead of a laced stocking, let the patient wear a *garter* of vulcanized India-rubber a little below the knee. (Dr. Hargrave, p. 171.)

AFFECTIONS OF THE DIGESTIVE ORGANS.

CHOLERA, *Infantile.*—Give the sweetened infusion of coffee, in frequently repeated doses; the strength of the infusion being so regulated, that from half a scruple to two scruples of coffee shall be used daily. (Dr. Pickford, p. 103.)

COLICA PICTONUM.—Give alum, in doses of fifteen grains every two hours. It should be reduced to an impalpable powder, and made into an electuary with treacle. (Sir J. Murray, p. 390.)

DIARRHŒA.—In cases where there is much pain and mucous discharge, dependent upon a relaxed condition of the mucous membrane, give five or ten grains of the "bisulphate of iron and alumina" every two or three hours, dissolved in any aromatic water. (Sir J. Murray, p. 388.)

From Exhaustion.—In pauper patients, and especially children, nux vomica is very useful. Use the following prescription (for adults?): Alcoholic extract of nux vomica, gr. ss.; rhubarb, gr. ss.; saccharated carbonate of iron, gr. i.; blue pill, gr. ss.; made into a pill, with or without opium gr. $\frac{1}{2}$; and taken thrice a day. (Dr. Nevins, p. 105.)

DYSENTERY, *Acute.*—In young and vigorous subjects, bleed from the arm at an early period of the disease; in other persons apply leeches repeatedly to the verge of the anus. In both cases give mercury, until fæcal matter appears in quantity in the stools, and there is relief to the general symptoms, or until the gums have been fairly affected; it may be given in combination with Dover's powder, which will relieve pain. When the mercury has made a decided impression upon the disease, or when it has affected the gums *without* relieving the distress or improving the stools, as also in cases where it is inadmissible, give alkalies. If there is a tendency to scybalous stools after the active symptoms have subsided, give a draught containing one drachm of castor oil with twenty drops of oil of turpentine, every three or four hours, till the bowels are unloaded; and at the same time use astringent injections containing acetate of lead. When a relapse occurs, give oil of turpentine. (Dr. R. Mayne, p. 379.)

DYSPEPSIA.—A most excellent aromatic bitter is copalchi bark, which may be given in doses of a tablespoonful of the infusion (cort. copalchi. $\frac{\ddot{z}}{}$ss.; aq. fervent. Oj.;) thrice daily. (Dr. J. Stark p. 385.)

When there is pyrosis, an excellent medicine is the new salt, "bisulphate of iron and alumina," given in doses of five or ten grains, dissolved in any aromatic water. (Sir J. Murray, p. 388.)

In cases described as "catarrh of the stomach," in which there is much vomiting of viscid ropy mucus, give alum, in doses of ten or twelve grains three or four times a day. It must be reduced to an impalpable powder, and made up into an electuary with treacle and a little powdered ginger. A little supertartrate of potash may be added, if constipation is produced by the alum. (Sir J. Murray, p. 389.)

Harelip.—Operate as early as possible after birth. (Drs. M. Warren and Anselm, and MM. Guersant and Paul Dubois, p. 186.)

It is unsafe to operate before weaning. (Mr. B. Cooper, p. 188.)

Use very fine insect pins, and after twenty-four hours take the threads from off the pins, and replace them by others less tightly drawn. It is unnecessary to detach the lip from the gum. (M. Paul Dubois, p. 187.)

Use sutures, instead of pins, to unite the edges, and introduce them by means of straight needles. (Dr. M. Warren, p. 187.)

The uninterrupted suture is probably the best mode of uniting the cut surfaces. (Mr. B. Cooper, p. 188.)

Apply collodion as a dressing. (pp. 393, 397.)

Double.—Operate on one side first, and allow a month to elapse before the second operation. (Dr. M. Warren, p. 186.)

Hernia.—It is recommended to have the springs of trusses made of "galvanized iron." (Dr. T. Stratton, p. 201.)

To prevent or heal excoriation from trusses, apply collodion. (Mr. J. Startin, p. 400.)

Obstructed.—In cases of "obstructed" hernia (an old irreducible hernia in a flaccid and painless state, with vomiting and obstinate constipation, and the vital powers of the patient low,) cut down upon the tumour without delay, and relieve the incarcerated bowel, if necessary, by breaking up adhesions; and give the patient stimuli. (Mr. J. Gay, p. 197.)

Hæmatemesis, *Vicarious.*—When hæmatemesis occurs in a man from suppressed hemorrhoidal discharges, give a hot hip-bath, and stimulant suppositories or injections; when in a woman, from suppressed menses, foment the pudenda and give emmenagogues; and in either case, if the patient be plethoric, bleed from the hand or foot. At the same time apply bladders of ice to the epigastrium, and administer ice, or cold or iced water, or a small teacupful of alum whey, (two drachms of alum in a pint of whey.)

Or give a pill containing three or four grains of alum, and two or three of dragon's blood, about every two hours. And prevent the recurrence of the disease by attention to its cause. (Dr. R. Dick, p. 106.)

Hemorrhoids, *Internal.*—Do not use ligatures. Excise the piles, and then inject solution of sulphate of iron, one grain to the ounce, which will arrest the bleeding. (Mr. J. P. Vincent, p. 202.)

Ileus.—In cases of intestinal obstruction, when the constipation is complete and there is fæcal vomiting, and these symptoms are not relieved by the use of ordinary means for three or four days, it is justifiable to resort to operation. If there are satisfactory indications of the seat of the obstruction, make the incision at or near that point, but if there is much doubt, make it in the median line. If the cause of the obstruction cannot be removed, or it is deemed imprudent to make an extended search for it, make an artificial anus as near as may be to the seat of obstruction. (Mr. B. Phillips, p. 201.)

Prolapsus Ani.—Inject solution of sulphate of iron, one grain to the ounce. If this injection is regularly employed for a few weeks, it will probably be unnecessary to resort to operation. (Mr. J. P. Vincent, p. 202.)

Tonsils, *Enlarged.*—Do not excise them; but give small doses of bichloride of mercury and colchicum, or the latter medicine with guaiacum. When tonsils are enlarged in childhood they will generally assume their natural size at puberty. (Mr. Harvey, p. 188.)

Vomiting.—In obstinate vomiting, try the new salt "bisulphate of iron and alumina," given in doses of five or ten grains, every two or three hours. (Sir J. Murray, p. 388.)

AFFECTIONS OF THE URINARY ORGANS, VENEREAL DISEASES, &c.

Albuminuria.—Amongst the purgatives to be used in this disease, the best are—croton oil, which is preferable to elaterium; sulphate of magnesia in rather a *concentrated* solution; and cream of tartar in full doses. Of tonics, chalybeates are the best, and the most suitable of them is the *tinct.* ferri mur. (Dr. J. D. Heaton, p. 124.)

Albumen may often be found in the urine of scrofulous children, during the various diseases to which they are liable; but it will frequently disappear after the exhibition of a smart purgative. (Dr. J. R. Cormack, p. 376.)

Bubo, *Creeping.*—In this form of bubo. a mercurial treatment is almost invariably required. We must give mercury steadily, until it disagrees with the system; then abstain from it, and give tonics; and after waiting a few weeks, or even months, again return to the use of the mercurial preparations. (Mr. S. Solly, p. 234.)

Diabetes.—As a good kind of non-amylaceous food, give bread made of potatoe-flour freed from starch, instead of wheat flour. [A formula is given in the body of the work.] (Dr. J. Percy, p. 127.)

Excoriation *of the Glans Penis.*—Apply collodion. (Mr. E. Wilson, p. 394.)

Gonorrhœa.—Give from twenty-five to thirty drops of vinum colchici three times a day, combined with tinct. opii; enjoining at the same time a low diet, the warm bath, and other like remedies. (Dr. Ficinus, p. 223.)

When severe pains remain in the course of the urethra, after all traces of the discharge have ceased, treat them by applying compression to the penis, as firmly as possible, without interfering with micturition. Apply this compression either by one strip of adhesive, two-fifths of an inch broad, rolled circularly round the penis, like a bandage, beginning at the glans; or by a number of small strips, the two extremities of each strip crossing upon the urethra. (M. Vidal, p. 224.)

Hæmatocele.—Lay open the cavity of the tunica vaginalis, and turn out the coagulum. (Mr. B. Cooper, p. 212.)

Hæmaturia.—When it arises from *irritation of the kidneys* by morbid matter, as lithic acid, endeavour to relieve these organs, by acting on the skin and bowels by purgatives and diaphoretics; apply counter-irritation by means of mustard,—not turpentine or cantharides; and if the patient is plethoric, even take a small quantity of blood by cupping.

In that form arising from *inflammatory renal dropsy*, endeavour to restore the action of the skin by the use of the hot-air bath, the debilitating effect of which may be counteracted, and its efficacy increased, by dashing cold water on the patient as soon as he comes out of the bath; further promote the elimination of water from the system by giving hydragogue purgatives, such as compound powder of jalap, or elaterium: and relieve the renal congestion by cupping or leeching, which are more efficacious when the congestion has assumed a passive character than at the commencement of the attack. Afterwards give nutritious diet, with bitartrate of potash in diuretic doses.

When the bleeding is the result of *general hemorrhagic tendency*, give astringents, as lead, tannin, or gallic acid. The latter is of the greatest value, and may be given in doses of as much as five

grains two or three times a day, either suspended in mucilage, or made into a pill. (Dr. R. B. Todd, p. 110.)

Give oil of turpentine internally. (Mr. J. P. Vincent, p. 166.)

Hydrocele.—Employ the iodine injection for the radical cure of hydrocele. In performing the operation, take care to push the canula quite into the cavity of the tunica vaginalis, by a quick, semi-rotatory, jerking motion, having placed the forefinger on the canula so as to limit the extent of its introduction. If from want of this precaution, the fluid injected has become extravasated into the cellular tissue of the scrotum, make several incisions into it, which will generally prevent bad consequences. In cases where there is difficulty in forming the diagnosis of hydrocele, the operation of incision may be resorted to.

Congenital.—Let a truss be worn. If this does not suffice, acupuncturation may be safely adopted; but injection, of course, must not be thought of.

Of the Cord.—Open the tunic, evacuate the fluid, and apply a truss. Injection is sometimes recommended, but we should hesitate before employing it.

Encysted.—Puncture with a needle, and squeeze out the fluid into the surrounding cellular membrane. Then give purgative medicines, and let the patient wear a suspensory bandage, and apply evaporating lotion.

In Children.—Apply a lotion containing one drachm of muriate of ammonia, two ounces each of rectified spirit and liq. ammon. acet. and four ounces of water. If this does not succeed, employ acupuncturation, which is almost infallible in children. (Mr. B. Cooper, p. 208.)

Incontinence of Urine.—Excoriation of the parts exposed to the flow of urine, may be prevented by the application of collodion, and may probably also be cured by the same means. (Mr. J. Startin, p. 400.)

Lithotomy.—After the operation, do not keep the patient long on spare diet, but, as a general rule, give support at an early period. (Mr. B. Cooper, p. 205.)

When *incontinence of urine* follows lithotomy, give the extract of nux vomica, beginning with an eighth of a grain thrice a day, and gradually increasing the dose. (Mr. S. Solly, p. 204.)

Orchitis, *Acute.*—Use active antiphlogistic treatment. Thus, in persons of plethoric habit, bleed from the arm; in others, in addition to the application of leeches to the affected organs, cup from the loins to about eight ounces. Give also a pill containing a grain and a half of calomel, one-third of a grain of tartarized antimony, and half a grain of opium; and the following mixture: ℞. Magn. sulph. ʒiij.; liq. ammon. acet. ℥i.; liq. antim. tart. ʒiss.; tinct. hyoscy. ʒiss.; aq. menth. ℥vij. M. Capt. ℥i. 3tis horis donec alvus bene responderit. Keep the patient on low diet,

and in the recumbent position. And as a local application use a lotion containing a drachm and a half of muriate of ammonia, two ounces each of rectified spirit and liq. ammon. acet., and four ounces of water. If the inflammation does not abate, open the congested vessels of the scrotum, and promote bleeding from them by warm fomentations. If enlargement and hardness of the testicle remain after the subsidence of the inflammatory symptoms, apply strips of lint spread with the following ointment: ℞. Ung. hydrarg.; cerat. saponis, aa. ʒij.; camphoræ, gr. v. M.; and over this, apply adhesive plaster, so as to make considerable pressure, Do not, however, use pressure in the early and acute stage.

Rheumatic and Gouty.—Give alkalies, and a small dose of colchicum at bedtime.

Gonorrhœal.—Apply warm fomentations to the scrotum, perineum, and penis, so as to re-establish the discharge, and then give calomel and opium every night. (Mr. B. Cooper, p. 206.)

Prostate, *Senile Enlargement of the.*—When there are severe symptoms, leech the perineum, empty the rectum by enemata, and then introduce opiate suppositories; and give a pill containing ext. colch. acet. gr. j.; pil. hydrarg. gr. j; pulv. Doveri gr. v.; ext. coloc. co. gr. iij.; twice a day. If the catheter is required, use a gum one, and introduce it with the utmost gentleness, and, if possible, without the stilette. In those cases where there is habitual retention of a portion of urine, on account of enlargement of the third lobe of the prostate, introduce the prostatic catheter regularly, and syringe out the bladder with warm water. When the urine is alkaline, give nitro-muriatic acid with opiates. When this does not restore the normal acidity of the urine, the administration of liquor potassæ will sometimes fulfil that object. (Mr. B. Cooper, p. 219.)

Phymosis.—Remove a circular portion of skin about a quarter of an inch wide. The outer layer of skin will then be drawn back, leaving the glans covered by the inner and tighter layer. With a sharp-pointed bistoury slit up this inner layer about half way back, at a point corresponding to the frænum, so as to form two angular flaps; turn these flaps outwards, and with a suture attach each angle to the edge of the external skin at about a quarter of its circumference from the frænum, and put in also a suture at the frænum; then draw all forward to cover the glans. (Mr. W. Colles, p. 206.)

Retention of Urine, *From Valvular Obstruction.*—When retention is caused by a valvular arrangement of the mucous membrane at the orifice of the bladder, it is proposed to make incisions in this membrane with an instrument like a short-curved sound with a concealed cutting blade. When the cause of retention is enlargement of the third lobe of the prostate, it is proposed to tear off the projecting portion of gland by means of a lithotrite. (M. Mercier, p. 217.)

From Stricture.—See "*Stricture.*"

From Abscess in the Perineum.—Open the abscess first, and then make an attempt to pass the catheter. If the cause of the abscess was other than an impermeable stricture, the catheter will very probably pass with great ease. (Mr. B. Cooper, p. 216.)

From Prostatic Disease.—See "*Prostate.*"

SOUNDING.—Use a short and straight instrument, when sounding a patient for the first time; the advantage of such an instrument is, that its point explores the post-prostatic fossa better than if the curve were larger. (Mr. S. Solly, p. 204.)

STRICTURE, *Spasmodic.*—Give a dose of opium with tartarized antimony, a hot bath, and a warm purgative enema. These measures should always precede the employment of the catheter, and will generally be found sufficient to afford relief without resorting to its use. In obstinate cases of *mixed* stricture, cup in the perineum, give two grains of calomel and a grain of opium at night, and, during the day, small doses of the tincture of muriate of iron. At the same time employ the bougie very gently. If it produces pain and bleeding, apply caustic to the stricture to diminish its irritability, and introduce into the rectum, at bedtime, a suppository containing a grain and a half of opium, and five grains of extract of henbane, mixed up with soap. (Mr. B. Cooper, p. 227.)

Permanent.—In the first place, explore the urethra. Making the patient lie down on a sofa, introduce a bougie or silver catheter (No. 6), and press it gently, for a minute or more, against the stricture. If it should pass the stricture, do not seek to introduce it further. After the use of the bougie, let the patient keep quiet and on low diet for the rest of the day, and take a draught containing liq. potass. gtts. xx.; tinct. opii. gtts. x.; mist. camph. ℥iss., at bedtime, and an aperient in the morning. In about forty-eight hours, introduce the bougie again, and this time it may be passed into the bladder, and allowed to remain for ten minutes or a quarter of an hour. If No. 6 cannot be introduced, carefully try a smaller one. If no instrument can be passed, be guided, as to the treatment, by the urgency of the symptoms. When there is retention of urine, and the pain complained of is very severe, put the patient in a hot bath, give a grain and a half or two grains of opium, and a purgative enema; and when the bowels are opened, introduce into the rectum a suppository, containing opium, and a quarter of a grain of belladonna. These means will generally relieve the urgent symptoms. Then proceed with the treatment, introducing a bougie gently every other day; and while this is being done, insist on the patient living very carefully, and give such medicines as blue pill with tartarized antimony, followed by aperients. If the stricture becomes irritable, give sedatives, and apply the caustic bougie carefully. If the attempts at dilatation by the bougie fail, try the repeated injection of tepid water into the urethra. If by all these means

relief is not obtained and the patient is suffering from retention, or is threatened with ulceration of the urethra behind the stricture, the bladder must be punctured. Under very urgent circumstances we may puncture by the rectum, (provided that the prostate is not enlarged); but as a general rule it is much better to cut down upon the urethra, and divide the stricture in the perineum. (Mr. B. Cooper, p. 228.)

In a case of very tight and irritable stricture, the best plan is to introduce a grooved director *into* the tight portion, to cut down upon it, and freely divide the stricture, and introduce a catheter into the urethra. This plan must not be confounded with that of introducing a catheter *as far* as the stricture, cutting down upon its point, and then with the knife cutting a way for the catheter to the bladder. (Prof. Syme, p. 224.)

When the catgut bougie is used, the great secret is to handle it with the utmost delicacy, and twirl it gently between the thumb and finger when it meets with obstruction. When it is introduced it should be allowed to remain for an hour. (Mr. S. Solly, p. 233.)

AFFECTIONS OF BONES AND JOINTS, &c.

Amputation.—In dressing the stump, instead of compresses and bandages, apply two long and broad strips of wetted lint, in a crucial manner, and support them by a circular strip, so as to support and press the flap against the bone. (Mr. J. Spence, p. 152.)

At the Ankle.—The following modification of Mr. Syme's operation has some advantages. After making the anterior incision from one malleolus to the other, mark out the form of the flap by carrying the knife deeply across the plantar aspect of the heel from the internal to the external malleolus: then disarticulate the joint, divide the tendo Achillis, and turn out the os calcis from the plantar flap by carrying the knife closely round the back and sides of the bone: lastly, remove the malleoli with the saw. This method is more easy and rapid than the usual plan of dissecting the flap from below upwards, before disarticulating. (Mr. J. Spence, p. 152.)

Dislocation, *Of the Astragalus.*—In cases of simple dislocation, attempt reduction. Administer chloroform; employ extension and counter-extension at the knee and foot respectively, and make direct pressure upon the dislocated bone. If the tendo Achillis is very tense and seems to hinder the reduction, divide it. (Mr. J. G. Crosse, p. 144.)

The following plan has succeeded in a case of dislocation inward. Chloroform being administered, and the limb being laid on

its outer side in a semi-flexed position, extension is made from the heel and foot by two assistants, the hands of one superposed over those of the other; and counter-extension is made by two other assistants from the thigh. The surgeon pushes the external margin of the foot with his knee, so as to produce great adduction of it, and then presses upon the astragalus with both his thumbs. (M. Boyer, p. 143.)

Of the Femur backwards.—In making extension for the reduction of this dislocation, let the thigh be placed at a right angle, or nearly so, with the abdomen, keeping it at the same time in a state of abduction, and having the knee bent. (Mr. R. Quain, p. 142.)

Old.—Old cases of dislocation are to be reduced, less by the force of extension than by the adaptation of appropriate manipulation. After the reduction, a long observance of immobility is even more necessary than after the reduction of recent dislocations. (Mr. J. P. Vincent, p. 141.)

Fracture, *Compound.*—If the edges of the wound can be got into apposition, apply collodion, so as to seal up one point after another till the whole is closed. (Dr. O'Ferrall, p. 156.)

Gangrene, *Traumatic.*—It is not necessary to operate for traumatic gangrene, if we carefully watch the patient for the first three or four days after severe injuries, and give food as the stomach can bear it, and stimuli when they are indicated. As a stimulant, give *brandy*, in preference to ammonia, which latter does harm by weakening the stomach. Regulate the secretions, if needful, by the use of mild mercurials with antimony. (Mr. J. P. Vincent, p. 249.)

Joints, *Diseased.*—The best kind of counter-irritation is that exerted by the issue made with caustic potash. In synovial disease of the knee the issue is particularly useful. (Mr. J. P. Vincent, p. 139.)

As a means of compression for enlarged joints, of the fingers especially, apply collodion. (Mr. J. Startin, p. 398.

Morbus Coxarius.—When the head of the femur is carious, and is acting as a source of irritation and wearing the patient down, when we are satisfied that nature cannot accomplish a spontaneous cure, and when at the same time thecaries is *confined, or nearly so*, to the femur, and there is no disease of other and internal organs, we are warranted in removing the carious bone. The operation consists in making a longitudinal incision over the head and for a convenient distance down the shaft of the femur, and another transverse one; clearing away the tissues down to the bone, turning it out, and sawing off the diseased portion; lastly, in uniting the edges of the wound by suture. (Prof. Fergusson, p. 131, Mr. H. Smith, pp. 129 and 138.)

"Excision of the head of the thigh-bone for caries of the joint, should be regarded as no less erroneous in theory, than objectionable in practice." (Prof. Syme, p. 136.)

Necrosis.—Never attempt any operation until the sequestrum is completely detached; and even then, do not interfere, if the extrusion of the dead bone is going on favourably. (Mr. J. P. Vincent, p. 155.)

Spine, *Lateral Curvature of the.*—In cases likely to be benefited by mechanical means, the best apparatus is "The Horizontal Lever Belt," invented by the Drs. Brown of Boston. Its use should be continued for months, together with such treatment as may be adapted to restore the general health. (Dr. W. J. Little, p. 148.)

AFFECTIONS OF THE SKIN, &c.

Acne *Vulgaris.*—Apply collodion. (Mr. E. Wilson, p. 394.)

Baldness.—For the baldness which follows herpes or pityriasis, apply the following pomade, to which in very old standing cases a drachm of tinct. lyttæ may be added:—prepared lard ℥ij, white wax, ʒij.; melt them together, remove from the fire, and as the mixture begins to thicken by cooling, add balsam of tolu, ʒij., oil of rosemary, ♏ xx., and stir them well. (Dr. Neligan, p. 252.)

Bedsores.—Apply collodion. (Dr. Muirhead, p. 393.)

Burns.—Apply collodion. (Dr. Crawford, p. 392.)

Cancer, *Of Lip.*—Apply chloride of zinc to the sore, in the following manner: Mix together two parts of chloride of zinc and three parts of gypsum, spread the powder over the surface of the sore, protecting the edges of the healthy skin with vinegar, and in about a quarter of an hour apply a soft poultice. (Dr. W. P. Brooke, p. 249.)

After the removal of cancer of the lip by operation, retain the edges of the wound in apposition by means of collodion. (p. 395.)

Chapped Hands.—Apply collodion. (Mr. E. Wilson, p. 392, Mr. J. Startin, p. 400.)

Chilblains.—Apply collodion. (Mr. J. Startin, p. 400.)

Erysipelas.—Apply a freezing mixture of pounded ice and salt, on a flat sponge, or in a bag of thin silk gauze, to a part of the inflamed surface, and keep it applied for about a minute, or until the skin becomes white and hard. Then apply it to another part of the surface, and so on until large patches of the skin have become frozen. (Dr. J. Arnott, p. 238.)

Erythema, *Chronic, Of the Face.*—Apply collodion, with a view to gain the benefit of its contractile property. (Mr. E. Wilson, p. 394.)

HERPES *Labialis, Præputialis, and Zoster.*—Apply collodion. (Mr. E. Wilson, p. 394.)

HOSPITAL GANGRENE.—Remove the patient from the source of contagion, let him be kept cleanly, and have a good supply of fresh air. Destroy the diseased part with the actual cautery, or by the application of the pure mineral acids, or a solution of arsenic or of chloride of zinc, or other caustic which shall penetrate the sloughing parts and destroy a thin layer of the unaffected parts beneath them. On the separation of the sloughs, treat the sores upon general principles. Be guided as to the constitutional treatment, by the kind of fever which the symptoms represent; using emetics, purgatives, and the early abstraction of blood, if the type is purely inflammatory, and less vigorous means, if it is of a different character. (Mr. G. J. Guthrie, p. 249.)

LICHEN *Agrius.*—Apply collodion. (Mr. E. Wilson, p. 394.)

LUPUS *Exedens and Non-Exedens.*—Apply collodion, with a view to obtain the advantage of its contractile power. (Mr. E. Wilson, p. 394.)

PRURIGO *Pudendi (and other Species.)*—In those severe cases which are not benefited by other treatment, give strychnia, beginning with one-sixth of a grain twice a day, and increasing the dose to one-fourth of a grain. Occasional doses of tincture of henbane may also be given.

Senilis.—Give phosphorus internally, in the form of phosphorated ether, having preceded it, for a day or two, by repeated doses of tincture of hyosciamus. [The dose is not stated; but the dose of the tinct. æther. c. phosphoro of the French, is, according to Pereira, from 5 to 10 drops.—ED.] (Dr. T. H. Burgess, p. 240.)

SMALL-POX.—In order to prevent *pitting* on the face and neck, apply collodion. (Dr. W. H. Ranking, p. 395.)

TUMOURS, *Encysted.*—In cases of small sebaceous tumours, instead of dissecting out the cyst, puncture the tumour, squeeze out the contents, and apply nitrate of silver all over the internal surface of the cyst. The most convenient way of applying the nitrate, is, to have a probe coated with it. (Dr. R. L. Macdonnell, p. 334.)

ULCERS, *Chronic.*—Apply collodion, in the following manner:—Dry the ulcer with bibulous paper; wash it over with ether, by means of a soft brush; again dry with the paper; then apply the collodion with a brush in a circular manner, so as to cover the edges of the ulcer to a greater or less extent, as may be deemed necessary, and varnish over so much of the ulcer itself as to leave a small central opening for the escape of discharges. Any stimulus judged to be favourable to cicatrization may be applied in the dry form before beginning to paint with the collodion. (Mr. Startin, p. 398.)

Indolent.—Dress the sore with a compress of lint dipped in cold water, and folded once, twice, or three times, according to the amount of compression deemed necessary; or, if the ulcer is very deep, cover it first with soft sponge torn up into very small shreds, and soaked in water, and over this apply the wetted lint in a single layer; then take three or more moistened strips of linen or calico, about two and a half inches wide, and apply them round the leg in the same manner as Baynton's strapping. Cover the whole by a calico bandage, placing compresses of lint about the malleoli, so as to insure the bandage being evenly applied. Soak the bandage with cold water, and envelope the limb in oiled silk, reopening this from time to time, to renew the cold affusion. At first the ulcer may require dressing every day, but, after a time, an interval of three, four, or even five days, may elapse between the dressings. (Mr. H. T. Chapman, p. 244.)

Take two parts of chloride of zinc, and three parts of gypsum; mix them, and spread the powder over the surface of the sore, protecting the edges of the healthy skin with vinegar. In about a quarter of an hour apply a poultice. (Dr. W. P. Brookes, p. 248.)

Menstrual.—Do not wait until the uterine functions are restored, but attack the ulcer at once. Begin by using solution of nitrate of silver, to allay the irritation; then apply strapping rather tightly, (see last Vol. of Retrospect, p. 285,) every other day, or every day, according to the amount of the discharge. Do not be discouraged, if the progress which the sore has made towards cure under this treatment, is to a great extent lost at the monthly period, but continue the treatment perseveringly until the ulcer is healed. Then treat the uterine disturbance, if it has not previously ceased spontaneously. When sores occur about the time of the cessation of the catamenia, take care, before healing them, to get a freely-discharging issue made. (Mr. G. Critchett, p. 243.)

Phagedænic.—In cases of phagedænic ulcer with extensively undermined edges, in which, if an escharotic were used, a large quantity of skin would have to be destroyed, take small strips of lint thoroughly saturated with black wash, and thrust them with a probe to the very bottom of the sore, so as to bring the black powder into contact with its entire surface. Afterwards apply strapping, *sec. art.* (Mr. G. Critchett, p. 242.)

Strumous.—A weak solution of iodine, or the black wash, are useful stimuli to strumous ulcers. If there is a mass of strumous matter forming beneath the skin, paint it over with tincture of iodine, or solid nitrate of silver. (Mr. G. Critchett, p. 241.)

Warts, *Venereal.*—Apply strong nitric acid to the excrescence, taking care not to injure the surrounding parts. (p. 223.)

Wounds.—Collodion is highly recommended as an application to wounds, especially incised wounds. (pp. 391, &c.)

AFFECTIONS OF THE EYE AND EAR.

DEAFNESS. *From Perforation of the Membrana Tympani.*—In treating deafness arising from deficiency of the membrana tympani, by the introduction of a bit of moistened cotton wool into the perforation, (See Retrospect, Vol. XVIII., p. 295,) it is recommended to moisten the wool with glycerine, instead of water. The glycerine attracts moisture from the atmosphere, and thus keeps the wool moist for a length of time, and prevents the necessity of changing it frequently. (Dr. Turnbull, p. 426.)

Try the pellicle of collodion, as an artificial tympanum, where such a contrivance is needed. Having got a portion of the pellicle of the required form, attach its edges to the sides of the meatus, by means of a small brush armed with the collodion in solution. (Mr. J. Startin, p. 398.)

Of Old People.—It generally depends upon *thickening of the mucous membrane and membrana tympani.* When this is the case, apply solution of nitrate of silver (from half a drachm to two drachms, to the ounce of distilled water) to the meatus externus, to the extent of half or two-thirds of its length, every third or fourth day; in some cases also apply a weaker solution (six grains to the ounce) to the membrana tympani itself. When there are symptoms of much congestion in the ear, apply leeches just *below* the meatus. If there is much irritation of the external tube, apply tincture of iodine, or an ointment composed of half a drachm of powdered cantharides and an ounce of cerate, below or behind the ears, daily, or every other day. When there is relaxation of the mucous membrane of the fauces, use astringent applications. At the same time give *very gentle* alterative doses of pil. hydrarg., hydrarg. c. creta, or hydrarg. bichlor. And let the patient take plenty of open air exercise, avoid close rooms, live moderately, and have a warm bath every week or ten days. (Mr. J. Toynbee, p. 254.)

EAR, *Foreign Bodies in the.*—Do not make tedious and painful attempts at extraction; if time is allowed, the natural processes will cause the ejection of the extraneous body. (Mr. J. P. Vincent, p. 186.)

ENTROPIUM.—After operations for entropium, unite the parts together by the application of collodion. (Mr. J. Startin, p. 398.)

EUSTACHIAN TUBE, *Obstruction of the.*—Catheterism of the Eustachian tube is an operation very rarely required: for examination with the otoscope (an elastic tube twenty inches long, tipped with ebony at both ends, one end to introduce into the external ear of the surgeon and the other into that of the patient) shows that obstruction of this tube very seldom exists. (Mr. J. Toynbee, p. 254.)

Fistula Lachrymalis.—Make the incision with a narrow-bladed knife, which should be passed into the mouth of the duct; slide a fine probe along the blade into the duct, and withdraw the knife; then pass the style by the side of the probe, and remove the latter. Never leave a canula in the nasal duct; it may become impacted and occasion a great deal of trouble. (Mr. W. W. Cooper, p. 252.)

Lachrymal Obstruction.—Examine the condition of the mucous membrane of the nostril, and if it is found thickened and congested, or ulcerated, apply to it by means of a camel-hair brush, an ointment composed of three parts of unguentum hydrargyri ammoniochloridi, to one part of oil of almonds; or apply in the same manner a solution of nitrate of silver, four grains to the ounce. At the same time, attend carefully to the general health. (Mr. W. White Cooper, p. 252.)

Ptosis.—After operations for ptosis, unite the edges of the wound together by means of collodion. (Mr. J. Startin, p. 398.)

MIDWIFERY AND DISEASES OF WOMEN.

Abortion.—In cases of inevitable abortion, where the uterine contractions are feeble and inefficient, and there is considerable hemorrhage, let the patient swallow pounded ice freely, with a view to promote the action of the uterus. (Dr. L. Mackall, p. 284.)

Threatened.—At an early period of the attack, when the hemorrhage is slight, and the pains few and weak, give tincture of Indian hemp, (Donovan's tincture of the resin), in doses of five drops thrice a day. (Dr. Churchill, p. 409.)

Afterpains.—Remove coagula from the vagina and os uteri, and apply linimentum opii, by gentle friction, to the abdomen, or, still better, to the mammæ. Take care also that all extra-uterine causes of uterine contraction are avoided. Thus, in excessive after-pains, when there is no hemorrhage, and no other symptom of inertia of the uterus, do not let the infant be applied to the breast, until the uterine irritability has become calmed. (Dr. W. Tyler Smith, p. 317.)

Breech Presentations.—The child dies from hemorrhage into the placenta, caused by compression of the umbilical vein. To obviate this, tie the cord early, before the complete birth of the child; and endeavour to get respiration carried on while the head is still in the vagina. (Mr. J. O. Fletcher, p. 339.)

Cancer *of the Uterus.*—With a view to restrain the continued draining of blood, try the tincture of Indian hemp. Begin with five drops of Donovan's tincture of the resin, thrice a day, and gradually increase the dose to ten drops. (Dr. Churchill, p. 410.)

When the disease involves only a portion of the os uteri, and proves an impediment to the dilatation of the latter during labour, it may be excised with safety and advantage. (Mr. J. M. Arnott, p. 276.)

CHLOROFORM, *Use of, in Midwifery.*—Begin the administration of chloroform towards the end of the first stage of labour, when the os uteri is well dilated; except the pains are very severe, when it may be given earlier. Do not give such large doses as in surgical practice, except when operative proceedings are to be resorted to; in which case the anæsthetic state should be as deep as in surgical operations. (Dr. J. Y. Simpson, p. 414.)

Do not give chloroform in natural labour, except in cases where the pain is unusually severe, or where a severe nervous pain is superadded to the ordinary pain of labour. And do not give it indiscriminately, even in obstetric operations: thus, in cases of retained placenta from inertia, the uterus would be more likely to contract upon the introduction of the hand, if the patient were not under the influence of chloroform. (Dr. W. F. Montgomery, p. 421.)

Do not give chloroform in natural labour, except when there is severe pain. Always, if possible, use an apparatus for its administration. Give a smaller dose than is given during surgical operations, except when it is wished to stop strong uterine action, in order to turn the child. (Dr. J. Snow, p. 422.)

FALLOPIAN TUBES.—A method of introducing bougies into the Fallopian tubes, for the relief of some forms of sterility, is described by (Dr. W. Tyler Smith, p. 341.)

FORCEPS.—An air-tractor, which acts by suction, is recommended as a substitute for the forceps, in all cases in which the latter are used, and is also said to be applicable in many cases where forceps cannot be employed. (Prof. Simpson, p. 280, Mr. James, p. 283.)

INERTIA *of the Uterus.* — Let the patient swallow pounded ice freely. This is a very efficient means of promoting the contractions of the uterus. (Dr. L. Mackall, p. 284.)

Very gentle dilatation of the os uteri with the finger, is extremely useful, when the pains are at all inefficient. (Dr. Lawrence, p. 274.)

LACERATION *of the Perineum.*—Apply collodion to bring the edges together. It has the advantage of retaining its firmness, although constantly wetted by the discharges. (Dr. Comstock, p. 391.)

MENORRHAGIA.—Give tincture of the resin of Indian hemp, (Donovan's), five drops three times a day. Its good effects are the best marked in those cases where the discharge, though excessive, is fluid, and but little mixed with clots, and where the uterus is not enlarged. (Dr. Churchill, p. 409.)

Give decoction of Thlaspi bursa pastoris (Shepherd's purse): a handful of the fresh plant in three teacupfuls of water, boiled down to two,—dose, a cupful twice a day. (M. Vanoye, p. 331.)

NIPPLES, *Chapped.*—Apply collodion. (Mr. E. Wilson, p. 392.)

Fissures at the Base of the.—Bring the edges together, and apply a pretty strong layer of collodion. (Dr. Simpson, p. 335.)

PLACENTA PRÆVIA.—*Where no exhaustion has taken place*, or where it is but commencing, turn and deliver as soon as the os uteri is sufficiently dilated, or is easily dilatable. Until that time, make compression upon the placenta, by first evacuating the liquor amnii (by means of an elastic catheter with a spear-pointed stilette, passed by the side of the placenta, and then pushed through the membranes), and then plugging the vagina with balls of tow loosely rolled up, and supported by a napkin soaked in iced water, applied to the vulva. And use those means which are calculated to support the circulation, and maintain or increase uterine action:—stimulants with opium, warmth to the extremities, pure air, and a moderate dose of ergot.

In a case of extreme exhaustion, do not attempt to turn; but separate the placenta, and leave the child undisturbed, until some decided reaction has taken place. (Dr. E. W. Murphy, p. 308.)

PREMATURE LABOUR.—A safe and efficient mode of inducing premature labour, is by the warm douche, applied to the uterus twice a day, by means of a canula properly introduced into the vagina. The water should have a temperature of about 108° F., and should be projected with a force equal to a fall of eight feet. (Dr. Grenser, p. 286.)

PROLAPSUS UTERI.—The best instrument for the relief of prolapsus uteri is Dr. Physick's globe pessary. One of two inches in diameter, pressed upwards to the uterine extremity of the vagina, will keep the uterus sufficiently high, and is worn with great comfort. (Dr. Meigs, p. 331.)

PUERPERAL CONVULSIONS. — In cases of *hyperæmic* convulsions, bleed, largely and promptly, at the very commencement of the paroxysm, or indeed as soon as the premonitory symptoms are sufficiently well marked. Give also a terebinthinate enema, and if the stomach is loaded, an emetic; or ten grains of calomel, followed by a saline senna draught containing a little tartarized antimony. And keep up the good effect of the depletion by repeated doses of tartarized antimony. Keep cloths wrung out of iced water applied to the head, and especially to the back of the neck; being careful, at the same time, to keep the lower extremities warm. When the paroxysm comes on, dash a basin of cold water rapidly into the face; and if this does not arrest it, take care that the patient does not injure herself during the fit, but do not hold her down, as if with the expectation of stopping the convulsion. Some recommend immediate delivery of the child,

but it is not right to adopt this practice indiscriminately. If the head has descended within reach of the forceps, apply them; but do not use the forceps if the paroxysms have subsided, for fear of again inducing them. If the head is impacted, and the child is dead, remove it by the crotchet. In other cases trust to the uterine action for effecting the delivery. *Never turn*, except the turning be otherwise necessary, as for a preternatural presentation.

Asthenic, or Anæmic convulsions require a different mode of treatment. Get the bowels freely evacuated by the use of warm stimulating cathartics, such as aloes with assafœtida, turpentine, &c.; and then give opium, stimulants, as camphor, ammonia, wine, and brandy, and nutritious food. During the paroxysm, dash cold water in the face. If venous congestion of the head results from the convulsions, cup from the back of the neck, and then apply a sinapism; taking care at the same time to support the patient's strength, and to keep the surface warm.

The treatment of *hysterical* convulsions consists in the use of stimulating purgative enemata, followed by diffusible stimulants with opium, and in dashing cold water in the face during the paroxysm. (Dr. E. W. Murphy, p. 325.)

RETROFLEXION *of the Uterus.*—Scarcely anything can be imagined, "better devised for inducing disease," than Dr. Simpson's uterine supporter. (Dr. Ashwell, p. 329.)

"This supporter," (Dr. Simpson's,) "will be found to create more disease than it cures." (Anon., p. 330.)

RIGIDITY *of the Os Uteri.*—Is dependent upon two causes, sphincteric muscular contraction, and want of distensibility in the non-contractile tissue. The treatment must be modified according as one or other of these causes predominate. In ordinary cases it is sufficient to wait patiently the result of the natural efforts, and avoid all uterine excitation.

In plethoric cases, bleed, either from the arm, or by leeches applied directly to the os uteri, and give nauseating doses of antimony or ipecacuanha. Use also warm enemata, hip-baths, and fomentations. In cases of sphincteric contraction, careful dilatation with the fingers will sometimes succeed. The ultimate remedy, in cases of mechanical rigidity, is incision of the os uteri at the tightest part; and this may also be practised in those spasmodic cases where other means fail, and danger is apprehended. (Dr. W. T. Smith, p. 272.)

Direct a continuous douche of warm water upon the os and cervix by means of an appropriate instrument. (Dr. Scanzoni, p. 274.)

The use of chloroform relieves rigidity of the os uteri. (Dr Snow, p. 423.)

STERILITY, *From Contractions of the Os Uteri.*—Sterility frequently depends upon a constriction of the orificium uteri internum. To relieve this, after subduing any tenderness or irritation by local depletion, introduce a bougie or small two-bladed dilator, daily, or every other day, until the os uteri remains open, and about the size of a goose-quill. The dilator is best introduced with the aid of the speculum, the patient lying on her left side. Incision of the cervix uteri is not at all to be recommended. (Mr. G. T. Gream, p. 340.)

From Obstruction of the Fallopian Tubes.—A method is described of introducing a fine whalebone bougie into the Fallopian tubes. The operation is said to be not difficult, and has been attended with no bad consequences. (Dr. W. Tyler Smith, p. 341.)

ULCERATION *of Os Uteri.*—The best way to apply Vienna paste to the os uteri, for the purpose of changing the morbid action which gives rise to congestion of that part, is to use a glass rod, expanded at the end into a circular disc. The paste is spread upon this disc, and the rod introduced through the speculum, and pressed against the part we wish to act upon. (Dr. Mitchell, p. 332.)

UMBILICUS, *Hemorrhage from the.*—When a disposition to this hemorrhage is known or suspected, apply collodion after the sepation of the funis, and before the usual compress is applied; and examine the part every day. When the bleeding actually occurs, it is necessary to adopt mechanical means to check it *without the least delay.* For this purpose, first pinch up the umbilicus between the finger and thumb, in the manner recommended for leechbites; and if this is successful, fill the depression of the umbilicus with cotton wool, and coat it over with collodion, or apply plaster of Paris mixed up with water. If these means do not control it, make an eschar with a probe, director, or skewer, heated to whiteness, and afterwards coat with collodion. Lastly, if other means fail, tie the vessel, first introducing a fine probe into it, to act as a guide for the incision. Ligature is not recommended except as a last resource, because in these cases there seems to be a hemorrhagic diathesis, and, consequently, it is undesirable to make incisions. (Mr. E. Ray, p. 315.)

UTERINE CATARRH.—Use injections of liq. plumbi acetatis, or of a solution of ʒ i. of iodide of iron in ℥ xij. of distilled water. Inject the fluid very slowly, through a caoutchouc tube introduced about three lines into the os uteri, and of such diameter as not completely to fill the orifice of the uterus. (Prof. Strohl, p. 332.)

VAGINA, *Injections into the.* A new instrument for injections into the vagina, the "Syphon Douche," is described by (Dr. W. Jones, p. 334.)

MISCELLANEA.

Anæsthetics.—*Chloroform.*—The use of chloroform in operations is not contra-indicated by any state of the patient as to age or constitution, nor by any disease which does not itself forbid the operation. In administering chloroform, always use an inhaler, and watch carefully the effects produced; and do not seek to produce insensibility in less time than two or three minutes. When the margin of the eyelid can be touched without causing contraction of the orbicularis muscle, or even when it causes but slight contraction, any operation can be performed without pain. At this time, as the effects of chloroform continue to increase for a few seconds after the inhalation is discontinued, it is advisable to intermit the vapour for a few inspirations, or to dilute it with more air, so as not to carry the insensibility too far. When the operation is over, do not disturb the patient prematurely, but await the complete return of consciousness. (Dr. J. Snow, p. 410.)

Dutch Oil.—The chloride of olefiant gas, or Dutch oil, is a safe and efficient anæsthetic. The dose required is smaller than that of chloroform, and its effects are more agreeable. (Mr. T. Nunneley, p. 423.)

Collodion.—Its various uses in the treatment of wounds, ulcers, skin diseases, &c., have been mentioned under those heads. A method of colouring collodion, and rendering it opaque, and of making its pellicle less contractile and more elastic, and porous, so as to imitate the properties of the cuticle as much as possible, is described by (Mr. J. Startin, p. 399.)

Contagion, *Prevention of.*—To preserve the hands or any part of them, from the contact of contagious matter, in dissection, post-mortem examinations, or midwifery practice, apply collodion. (Mr. E. Wilson, p. 394, Mr. J. Startin, p. 400.)

A better application than collodion is, the compound solution of caoutchouc and gutta percha; made by adding a drachm of gutta percha to an ounce of benzole, and also ten grains of India-rubber to an ounce of the same fluid, dissolving by a gentle heat, and then mixing the solutions. (Mr. W. Acton, p. 251.)

Cupping.—Apply collodion as a dressing to the incisions made in cupping. (Dr. W. H. Ranking, p. 393.)

Gargles.—The best way to use gargles, is to draw them through one or both nostrils. (Sir J. Murray, p. 390.)

Operations.—After severe operations, do not keep the patient too long on spare diet, but give support at an early period. (Mr. B. Cooper, p. 205.)

Poisoning, *By Lead.*—In cases of chronic lead-poisoning, give iodide of potassium. (M. Melsens, p. 262.)

By Chloride of Zinc.—Give solution of soap freely, or carbonate of potash or soda. (Dr. T. Stratton, p. 264.)

By Opium.—After the use of the stomach-pump, give coffee, and pass currents from the electro-magnetic apparatus through the shoulders, chest, abdomen, arms, and legs. In some cases, cold affusion will be beneficial. Such remedies as ammonia should not be given but under the most urgent circumstances. (Dr. Lankester, p. 265.)

Suppositories.—In using a suppository, take care that it is not merely placed within the anus, but passed up into the bowel *above* the sphincter. (Mr. B. Cooper, p. 227.)

LITERARY ANNOUNCEMENTS.

1 Elements of Chemistry, Theoretical and Practical, including the most recent Discoveries and Applications of the Science to Medicine and Pharmacy, to Agriculture and Manufactures: illustrated by 230 wood cuts, second edition. By Sir Robert Kane, M.D., M.R.I.A., President of the Queen's College, Cork, Director of the Museum of Irish Industry, &c., &c. Dublin: Hodges and Smith, 1849.

This work consists of above 1050 pages, and is copiously illustrated by wood engravings. It presents a most complete account of the general principles and facts of chemistry, and its application to medicine. It is, perhaps, one of the most complete treatises of the kind in our language.

2 Obstetrics: the Science and the Art. By Charles D. Meigs, M.D., Professor of Midwifery and the Diseases of Women and Children, in the Jefferson Medical College, Philadelphia, &c. &c. &c., with 121 illustrations. Philadelphia: Lea and Blanchard.

Dr. Meigs is well known to the English reader, and, on looking over this work, we find it full of the most interesting and practical information, combined with such clinical illustration as shows at once that the author has not depended simply on the information and opinions of others, but has thought and acted for himself. We strongly recommend this book to the English reader.

3 Thoughts on Pulmonary Consumption; with an Appendix on the Climate of Torquay. By William Herries Madden, M.D., Physician to the Torbay Infirmary and Dispensary, &c. London: John Churchill, Princes Street.

4 An Account of the Origin, Spread, and Decline of the Epidemic Fevers of Sierra Leone; with Observations on Sir William Pym's Review of the "Report on the Climate and Diseases of the African Station." By Alexander Bryson, M.D., R.N. London: Henry Renshaw, Strand.

5 On Infantile Laryngismus; with Observations on Artificial Feeding, as a frequent Cause of this Complaint, and of other Convulsive Diseases of Infants. By James Reid, M.D., Physician to the General Lying-in Hospital, &c. &c. &c. London: John Churchill, Princes Street.

6 An Essay on the Cerebral Affections occurring most commonly in Infancy and Childhood, including Notices of their History, Causes, Diagnosis, Prognosis, and Treatment: being the Council Prize Essay, awarded at the Annual Meeting of the Provincial Medical and Surgical Association, held at Bath, 1848. By VALENTINE DUKE, M.D., Fellow of the Royal College of Surgeons in Ireland, &c. Dublin: Fannin & Co. London: Longman & Co.

7 On the Management of the Skin as a Means of Promoting and preserving Health. By ERASMUS WILSON, F.R.S., &c. Third edition. London: John Churchill.

8 Practical Observations on the Prevention, Causes, and Treatment of Curvatures of the Spine; with engravings and wood-cuts, illustrative of the cases. By SAMUEL HARE, Esq. Third edition. London: John Churchill.

9 The Code of Safety; or Causes, Effects, and Aids, Preventive and Curative, as well of other Epidemics as also of Asiatic Cholera. By G. F. COLLIER, M.D., formerly of Magdalen Hall, Oxford, &c. &c. London: Longman & Co.; Simpkin & Co.

10 On Operation for Artificial Anus. By J. MASON WARREN, M.D., one of the Surgeons of the Massachusetts General Hospital. Boston: David Clapp.

11 On Ligature of the Left Subclavian Artery. By J. MASON WARREN, M.D. Boston: David Clapp.

12 On the Pathology and Treatment of the Deafness attendant upon Old Age; illustrated by Dissections and Cases. By JOSEPH TOYNBEE, F.R.S., Surgeon to the St. George's and St. James' Dispensary, London, &c. &c.

13 On the Effects of Chloroform, and of Strong Chloric Ether, as Narcotic Agents. By JOHN C. WARREN, M.D., author of "Etherization, with Surgical Remarks," &c. Boston: W. D. Ticknor & Co., 1849.

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